INFO #: 15858378 GTC BIOTHERAPEUTICS
Dawn Corey Greenaway

NB 04/20/2005
12:00 AM PT
Z

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FILLED ON: 05/31/2005

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SHIP TO : 76614 / 764427

GTC BIOTHERAPEUTICS
Dawn Corey Greenaway

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ARIEL: dawn.corey@gtc-bio.com

NOTES:

ARTICLE INFORMATION

U S DEPARTMENT OF HEALTH AND HUMAN SERVICES
91-3242(5TH ED.):1-29 1991
KABAT,EA;
SEQUENCES OF PROTEINS OF IMMUNOLGICAL INTEREST

CCD	4889
SHIP VIA	Ariel dawn.corey@gtc-bio.com
ORDER #	
BILLING REF	76614-764427
ORDERED ON	04/11/2005
FILLED ON	05/31/2005
NEED BY	04/20/2005
ATTENTION	Dawn Corey Greenaway
INFO #	15858378

SIGNAL PEPTIDES OF HUMAN KAPPA LIGHT CHAINS

	INVARIANT RESIDUES	1 HK101 'CL	2 HK 137 'CL	3 VKI- Chr1 'CL	4 HuVH CAMP 'CL	5 VKI-ZI 'CL	6 3D6 'CL	7 V108 'CL	8 Vb 'CL	9 Vb' 'CL	10 HK102 'CL	11 2A12 'CL	12 1H1 'CL	13 2C12 'CL	14 1B11 'CL	15 Vd 'CL	16 Va' 'CL	17 Ve 'CL	18 V13 'CL	19 GM 607 'CL	20 A3 'CL	21 RPMI 6410 #	22 A2 'CL	23 A23 'CL
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-22		MET	MET	---	---	THR	MET	MET	MET	MET	MET	MET				MET	MET	---	MET			---	---	
-21		ASP	ASP	---	---	ASP	ASP	GLU	ASP	ASP	ASP	ASP				ASP	ASP	---	ASP			---	---	
-20	MET(.98)	MET	MET	MET	---	VAL	MET	MET	MET	MET	MET	MET				MET	MET	MET	MET		MET	MET	MET	MET
-19		ARG	ARG	ARG	MET	ARG	ARG	ARG	ARG	MET	ARG	ARG				ARG	ARG	ARG	ARG		LEU	LEU	LEU	LEU
-18		VAL	VAL	ALA	GLY	ALA	VAL	VAL	VAL	VAL	VAL	VAL				VAL	VAL	VAL	VAL		LEU	LEU	LEU	LEU
-17		LEU	LEU	PRO	TRP	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO			PRO	PRO	PRO	PRO		PRO	PRO	PRO	LEU
-16		ALA	ALA	THR	SER	THR	ALA	ALA	ALA	ALA	ALA	ALA	ALA			ALA	ALA	ALA	ALA		ALA	ALA	ALA	ALA
-15		GLN	GLN	GLN	CYS	GLN	GLN	GLN	GLN	GLN	GLN	LEU	LEU			GLN	GLN	GLN	GLN		GLN	GLN	GLN	GLN
-14		LEU	LEU	LEU	ILE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU
-13		LEU	LEU	LEU	ILE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU
-12		GLY	GLY	GLY	LEU	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY			GLY	GLY	GLY	GLY		GLY	GLY	GLY	GLY
-11		LEU	LEU	LEU	PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU
-9		LEU	LEU	VAL	VAL	GLY	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU		MET	MET	MET	MET
-8	LEU(.95)	LEU	LEU	LEU	ALA	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU
-7	TRP(.95)	CYS	CYS	TRP	THR	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP
-6		PHE	PHE	LEU	ALA	LEU	LEU	LEU	PHE	PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		VAL	VAL	ILE	VAL
-5		PRO	PRO	PRO	THR	PRO	ARG	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO		SER	PRO	PRO	PRO
-4		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
-3		ALA	ALA	ALA	VAL	ALA	ALA	ALA	SER	SER	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	SER	SER	SER	SER	SER
-2		ARG	ARG	ARG	HIS	ARG	LYS	ARG	ARG	ARG	LYS	LYS	LYS	LYS	LYS	ARG	ARG	ARG	ARG	SER	SER	SER	SER	SER
-1		CYS	CYS	CYS	SER	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	GLY	GLY	GLY	ALA	GLY

	24 NG9 'CL	25 HIC (R) 'CL #	26 HAH 14.1 'CL #	27 HAH 14.2 'CL #	28 HAH 16.1 'CL #	29 NOV 'CL #	30 8E10 'CL #	31 TH3 'CL #	32 Humkv 325 'CL	33 EV1-15 'CL	34 IARC/ BL41 'CL	35 Humkv 305 'CL	36 LS1 'CL	37 LS2 'CL	38 LS4 'CL	39 LS5 'CL	40 LS6 'CL	41 LS7 'CL	42 LS8 'CL	43 Vg 'CL	44 Vh 'CL	45 CLL 'CL #	46 Hum kv328 'CL #	47 Hum kappa1es 'CL #
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-20		MET	MET	MET	MET	MET			MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET			
-19		GLU	GLU	GLU	GLU	GLU			GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU			
-18		THR	THR	THR	THR	THR			THR	THR	THR	THR	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA			
-17		PRO	PRO	PRO	PRO	PRO			PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO			
-16		ALA	ALA	ALA	ALA	ALA			ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA			
-15		GLN	GLN	GLN	GLN	GLN			GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN			
-14		LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-13		LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-12		PHE	PHE	PHE	PHE	PHE			PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE			
-11		LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-10		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-9		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-8		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-7		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP			
-6		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			
-5		PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO			
-4	VAL	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP		ASP
-3	PRO	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		THR
-2	SER	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		THR
-1	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ARG	GLY	GLY	GLY

	48 GF4 /1.1 'CL	49 K- EV15 'CL	50 VKAPPA IV GERMLINE 'CL	51 PB17IV 'CL	52 FK-001 'CL #	53 WALKER 'CL	54 DAUDI 'CL	55 VJ1 'CL	56 HK100 'CL	57 Va 'CL	58 V2 'CL	59 V14 'CL	60 V52 'CL	61 V55 'CL	62 K- EVJK11 'CL	63 PSEUDO VKAPPA 24'CL	# OF SEQUENCES	# OF AMINO ACIDS
-29	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---		
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-22	---	---	---	---	---	MET	MET	---	MET	MET	---	---	MET		---	---	17	2
-21	---	---	---	---	---	ASP	ASP	---	ASP	ASP	---	---	ASP		---	---	17	2
-20	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET		MET	MET	52	2
-19	GLU	GLY	VAL	VAL	VAL	ARG	ARG	VAL	ARG	ARG	GLN	GLN	ARG		GLU	ARG	53	6
-18	ALA	SER	LEU	LEU	LEU	VAL	VAL	LEU	VAL	VAL	VAL	VAL	ALA		THR	CYS	53	7
-17	PRO	GLN	GLN	GLN	GLN	PRO	PRO	GLN	PRO	PRO	PRO	PRO	PRO		PRO	SER	54	5
-16	ALA	VAL	THR	THR	THR	ALA	ALA	THR	ALA	ALA	THR	THR	ALA		ALA	PRO	54	5
-15	HIS	HIS	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN		GLN	HIS	54	4
-14	VAL	LEU	VAL	VAL	VAL	LEU	LEU	VAL	LEU	LEU	LEU	LEU	LEU		LEU	PHE	54	4
-13	LEU	LEU	PHE	PHE	PHE	LEU	LEU	PHE	LEU	LEU	LEU	LEU	LEU		LEU	LEU	54	3
-12	PHE	SER	ILE	ILE	ILE	GLY	GLY	ILE	GLY	GLY	GLY	GLY	GLY	GLY	PHE	GLU	55	6
-11	LEU	PHE	SER	SER	SER	LEU	LEU	SER	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	55	3
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	58	1
-9	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	VAL	VAL	LEU	PRO	LEU	VAL	58	5
-8	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	SER	LEU	PHE	58	4
-7	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	59	3
-6	LEU	ILE	ILE	ILE	ILE	LEU	LEU	ILE	LEU	LEU	LEU	LEU	LEU	PHE	LEU	ILE	59	5
-5	PRO	SER	SER	SER	SER	ARG	ARG	SER	SER	PRO	PRO	PRO	PRO	PRO	PRO	LEU	59	5
-4	GLU	ASP	GLY	GLY	GLY	GLY	ARG	GLY	GLY	GLY	GLY	GLY	ASP	GLY	ASP	GLU	63	5
-3	THR	THR	ALA	ALA	ALA	ALA	VAL	ALA	ALA	ALA	ALA	ALA	THR	THR	THR	VAL	63	5
-2	SER	ARG	TYR	TYR	ARG	ARG	ARG	TYR	ARG	ARG	ARG	ARG	ARG	ARG	THR	SER	63	6
-1	GLY	ALA	GLY	GLY	GLY	CYS	CYS	GLY	TYR	CYS	CYS	CYS	CYS	SER	GLY	GLY	63	6

SIGNAL PEPTIDES OF HUMAN KAPPA LIGHT CHAINS (cont'd)

	OCCURRENCES OF MOST COMMON AMINO ACID	VARIABILITY
-29		
-28		
-27		
-26		
-25		
-24		
-23		
-22	16 (MET)	2.1
-21	16 (ASP)	2.1
-20	51 (MET)	2.
-19	23 (ARG)	14.
-18	18 (VAL)	21.
-17	44 (PRO)	6.1
-16	43 (ALA)	6.3
-15	48 (GLN)	4.5
-14	47 (LEU)	4.6
-13	49 (LEU)	3.3
-12	27 (GLY)	12.
-11	49 (LEU)	3.4
-10	58 (LEU)	1.
-9	47 (LEU)	6.2
-8	55 (LEU)	4.2
-7	56 (TRP)	3.2
-6	43 (LEU)	6.9
-5	47 (PRO)	6.3
-4	33 (GLY)	9.5
-3	28 (THR)	11.
-2	24 (THR)	16.
-1	34 (GLY)	11.

PRECURSOR OF:

1) **HK101'CL**: HUMAN KAPPA LI
2) **HK137'CL**: HUMAN KAPPA LI
3) **VKI-Chr1'CL**: HUMAN KAPPA
4) **HuVHCAMP'CL**: HUMAN KAPPA
5) **VKI-ZI'CL**: HUMAN KAPPA L
6) **3D6'CL**: HUMAN KAPPA LIGH
7) **V108'CL**: HUMAN KAPPA LIC
8) **Vb'CL**: HUMAN KAPPA LIGHT
9) **Vb''CL**: HUMAN KAPPA LIGH
10) **HK102'CL**: HUMAN KAPPA LI
11) **2A12'CL**: HUMAN KAPPA LIC
12) **1H1'CL**: HUMAN KAPPA LIGH
13) **2C12'CL**: HUMAN KAPPA LIC
14) **1B11'CL**: HUMAN KAPPA LIC
15) **Vd'CL**: HUMAN KAPPA LIGHT
16) **Va''CL**: HUMAN KAPPA LIGH
17) **Ve'CL**: HUMAN KAPPA LIGHT
18) **V13'CL**: HUMAN KAPPA LIGH
19) **GM 607'CL**: HUMAN KAPPA I
20) **A3'CL**: HUMAN KAPPA LIGHT
21) **RPMI6410'CL**: HUMAN KAPPA
22) **A2'CL**: HUMAN KAPPA LIGHT
23) **A23'CL**: HUMAN KAPPA LIGH
24) **NG9'CL**: HUMAN KAPPA LIGH
25) **HIC (R)'CL**: HUMAN KAPPA
26) **HAH 14.1'CL**: HUMAN KAPPA
27) **HAH 14.2'CL**: HUMAN KAPPA
28) **HAH 16.1'CL**: HUMAN KAPPA
29) **NOV'CL**: HUMAN KAPPA LIGH
30) **SE10'CL**: HUMAN KAPPA LIC
31) **TE3'CL**: HUMAN KAPPA LIGH
32) **Humkv325'CL**: HUMAN KAPP
33) **EV1-15'CL**: HUMAN KAPPA
34) **IARC/BL41'CL**: HUMAN KAP
35) **Humkv305'CL**: HUMAN KAPP
36) **LS1'CL**: HUMAN KAPPA LIG
37) **LS2'CL**: HUMAN KAPPA LIG
38) **LS4'CL**: HUMAN KAPPA LIG
39) **LS5'CL**: HUMAN KAPPA LIG
40) **LS6'CL**: HUMAN KAPPA LIG
41) **LS7'CL**: HUMAN KAPPA LIG
42) **LS8'CL**: HUMAN KAPPA LIG
43) **Vg'CL**: HUMAN KAPPA LIGH
44) **Vh'CL**: HUMAN KAPPA LIGH
45) **CLL'CL**: HUMAN KAPPA LIG
46) **Humkv328'CL**: HUMAN KAPP
47) **Humka31ea'CL**: HUMAN KAP
48) **GF4/1.1'CL**: HUMAN KAPPA
49) **K- EV15'CL**: HUMAN KAPPA
50) **VKAPPA IV GERMLINE'CL**:
51) **PB17IV'CL**: HUMAN KAPPA
52) **FK-001'CL**: HUMAN KAPPA
56) **HK100'CL**: HUMAN KAPPA L
62) **K- EVJK11'CL**: HUMAN KAP

REFERENCE: SIGNAL PEPTI

1) **HK101'CL**: BENTLEY,D.L.
2) **HK137'CL**: BENTLEY,D.L.
3) **VKI-Chr1'CL**: LOTSCHER,E 69,215-223.
4) **HuVHCAMP'CL**: RIECHMANN,
5) **VKI-ZI'CL**: STRAUBINGER,
6) **3D6'CL**: FELGENHAUER,M.,
7) **V108'CL**: HUBER,C.,THIEE
8) **Vb'CL**: PECH,M.,JAENICHE (CHECKED BY AUT
9) **Vb''CL**: PECH,M.,JAENICH (CHECKED BY AUT
10) **HK102'CL**: BENTLEY,D.L. LINDENMAIER,W.,
11) **2A12'CL**: LEVY,S.,MENDEI
12) **1H1'CL**: LEVY,S.,MENDEL,
13) **2C12'CL**: LEVY,S.,MENDEI
14) **1B11'CL**: LEVY,S.,MENDEI
15) **Vd'CL**: PECH,M.,JAENICHE (CHECKED BY AUT
16) **Va''CL**: PECH,M.,JAENICH (CHECKED BY AUT
17) **Ve'CL**: PECH,M.,JAENICHE (CHECKED BY AUT
18) **V13'CL**: JAENICHEN,H.-R. BY AUTHOR 12/1
19) **GM 607'CL**: KLOBECK,H.G.
20) **A3'CL**: STRAUBINGER,B., (1988) J.MOL.B
21) **RPMI6410'CL**: KLOBECK,H LEDER,P. (1986
22) **A2'CL**: SCOTT,M.G.,CRIM
23) **A23'CL**: STRAUBINGER,B., (1988) J.MOL.B
24) **NG9'CL**: BENTLEY,D.L. (
25) **HIC (R)'CL**: KIPPS,T.J.
26) **HAH 14.1'CL**: KIPPS,T.J
27) **HAH 14.2'CL**: KIPPS,T.J
28) **HAH 16.1'CL**: KIPPS,T.J
29) **NOV'CL**: KIPPS,T.J.,TOM
30) **SE10'CL**: DERSIMONIAN,H
31) **TE3'CL**: DERSIMONIAN,H.
32) **Humkv325'CL**: KIPPS,T.J
33) **EV1-15'CL**: NEWKIRK,M.M
34) **IARC/BL41'CL**: KLOBECK,
35) **Humkv305'CL**: CHEN,P.P. PROC.NATL.ACAD
36) **LS1'CL**: SILBERSTEIN,L.
37) **LS2'CL**: SILBERSTEIN,L.

PRECURSOR OF:

1) **HK101'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
2) **HK137'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
3) **VKI-Chr1'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
4) **HuVHCAMP'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
5) **VKI-EI'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
6) **3D6'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
7) **V108'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
8) **Vb'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
9) **Vb''CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
10) **HK102'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
11) **2A12'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
12) **1H1'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
13) **2C12'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
14) **1B11'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
15) **Vd'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
16) **Va''CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
17) **Ve'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
18) **V13'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP I
19) **GM 607'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP II
20) **A3'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP II
21) **RPMI6410'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP II
22) **A2'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP II
23) **A23'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP II
24) **NG9'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
25) **HIC (R)'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
26) **HAH 14.1'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
27) **HAH 14.2'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
28) **HAH 16.1'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
29) **NOV'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
30) **SE10'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
31) **TH3'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
32) **Humkv325'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
33) **EV1-15'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III.
34) **IARC/BL41'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
35) **Humkv305'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
36) **LS1'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
37) **LS2'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
38) **LS4'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
39) **LS5'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
40) **LS6'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
41) **LS7'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
42) **LS8'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
43) **Vg'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
44) **Vh'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
45) **CLL'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
46) **Humkv328'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
47) **Humka31es'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
48) **GF4/1.1'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
49) **K- EV15'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP III
50) **VKAPPA IV GERMLINE'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP IV
51) **PB17IV'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP IV
52) **FK-001'CL:** HUMAN KAPPA LIGHT CHAINS SUBGROUP IV
56) **HK100'CL:** HUMAN KAPPA LIGHT CHAIN OF HK100
62) **K- EVJK11'CL:** HUMAN KAPPA PSEUDOGENE

REFERENCE: SIGNAL PEPTIDES OF HUMAN KAPPA LIGHT CHAINS

1) **HK101'CL:** BENTLEY,D.L. & RABBITTS,T.H. (1980) NATURE,288,730-733. (CHECKED BY AUTHOR 11/30/82)
2) **HK137'CL:** BENTLEY,D.L. & RABBITTS,T.H. (1983) CELL,32,181-189.
3) **VKI-Chr1'CL:** LOTSCHER,E.,ZIMMER,F.-J.,KLOPSTOCK,T.,GRZESCHIK,K.-H.,JAENICHEN,R.,STRAUBINGER,B. & ZACHAU,H.G. (1988) GENE, 69,215-223.
4) **HuVHCAMP'CL:** RIECHMANN,L.,CLARK,M.,WALDMANN,H. & WINTER,G. (1988) NATURE,332,323-327.
5) **VKI-EI'CL:** STRAUBINGER,B.,THIEBE,R.,PECH,M. & ZACHAU,H.G. (1988) GENE,69,209-214.
6) **3D6'CL:** FELGENHAUER,M.,KOHL,J. & RUKER,F. (1990) NUCL.ACIDS RES., 18,4927.
7) **V108'CL:** HUBER,C.,THIEBE,R.,HAMEISTER,H.,SMOLA,H.,LOTSCHER,E. & ZACHAU,G. (1990) NUCL.ACIDS RES.,18,3475-3478.
8) **Vb'CL:** PECH,M.,JAENICHEN,H.-R.,POHLENZ,H.-D.,NEUMAIER,P.S.,KLOBECK,H.-G. & ZACHAU,H.G. (1984) J.MOL.BIOL.,176,1-16. (CHECKED BY AUTHOR 12/14/84)
9) **Vb''CL:** PECH,M.,JAENICHEN,H.-R.,POHLENZ,H.-D.,NEUMAIER,P.S.,KLOBECK,H.-G. & ZACHAU,H.G. (1984) J.MOL.BIOL.,176,1-16. (CHECKED BY AUTHOR 12/14/84)
10) **HK102'CL:** BENTLEY,D.L. & RABBITTS,T.H. (1980) NATURE,288,730-733. (CHECKED BY AUTHOR 11/30/82); JAENICHEN,H.-R.,PECH,M., LINDENMAIER,W.,WILDGRUBER,N. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,5249-5263.
11) **2A12'CL:** LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
12) **1H1'CL:** LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
13) **2C12'CL:** LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
14) **1B11'CL:** LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
15) **Vd'CL:** PECH,M.,JAENICHEN,H.-R.,POHLENZ,H.-D.,NEUMAIER,P.S.,KLOBECK,H.-G. & ZACHAU,H.G. (1984) J.MOL.BIOL.,176,1-16. (CHECKED BY AUTHOR 12/14/84)
16) **Va''CL:** PECH,M.,JAENICHEN,H.-R.,POHLENZ,H.-D.,NEUMAIER,P.S.,KLOBECK,H.-G. & ZACHAU,H.G. (1984) J.MOL.BIOL.,176,1-16. (CHECKED BY AUTHOR 12/14/84)
17) **Ve'CL:** PECH,M.,JAENICHEN,H.-R.,POHLENZ,H.-D.,NEUMAIER,P.S.,KLOBECK,H.-G. & ZACHAU,H.G. (1984) J.MOL.BIOL.,176,1-16. (CHECKED BY AUTHOR 12/14/84)
18) **V13'CL:** JAENICHEN,H.-R.,PECH,M.,LINDENMAIER,W.,WILDGRUBER,N. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,5249-5263. (CHECKED BY AUTHOR 12/14/84)
19) **GM 607'CL:** KLOBECK,H.G.,SOLOMON,A. & ZACHAU,H.G. (1984) NATURE,309,73-76. (CHECKED BY AUTHOR 06/27/85)
20) **A3'CL:** STRAUBINGER,B.,HUBER,E.,LORENZ,W.,OSTERHOLZER,E.,PARGENT,W.,PECH,M.,POHLENZ,H.-D.,ZIMMER,F.-J. & ZACHAU,H.G. (1988) J.MOL.BIOL.,199,23-34.
21) **RPMI6410'CL:** KLOBECK,H.G,MEINDL,A.,COMBRIATO,G.,SOLOMON,A. & ZACHAU,H.G. (1985) NUCL.ACIDS RES.,13,6499-6513; WEIR,L. & LEDER,P. (1986) NUCL.ACIDS RES.,14,3957-3970.
22) **A2'CL:** SCOTT,M.G.,CRIMMINS,D.L.,MCCOURT,D.W.,ZOCHER,I.,THIEBE,R.,ZACHAU,H.G. & NAHM,M.H. (1989) J.IMMUNOL.,143,4110-4116.
23) **A23'CL:** STRAUBINGER,B.,HUBER,E.,LORENZ,W.,OSTERHOLZER,E.,PARGENT,W.,PECH,M.,POHLENZ,H.-D.,ZIMMER,F.-J. & ZACHAU,H.G. (1988) J.MOL.BIOL.,199,23-34.
24) **NG9'CL:** BENTLEY,D.L. (1984) NATURE,307,77-80.
25) **HIC (R)'CL:** KIPPS,T.J.,TOMHAVE,E.,CHEN,P.P. & CARSON,D.A. (1988) J.EXP.MED.,167,840-852.
26) **HAH 14.1'CL:** KIPPS,T.J.,TOMHAVE,E.,CHEN,P.P. & CARSON,D.A. (1988) J.EXP.MED.,167,840-852.
27) **HAH 14.2'CL:** KIPPS,T.J.,TOMHAVE,E.,CHEN,P.P. & CARSON,D.A. (1988) J.EXP.MED.,167,840-852.
28) **HAH 16.1'CL:** KIPPS,T.J.,TOMHAVE,E.,CHEN,P.P. & CARSON,D.A. (1988) J.EXP.MED.,167,840-852.
29) **NOV'CL:** KIPPS,T.J.,TOMHAVE,E.,CHEN,P.P. & FOX,R.I. (1989) J.IMMUNOL.,142,4261-4268.
30) **SE10'CL:** DERSIMONIAN,H.,MCADAM,K.P.W.J.,MACKWORTH-YOUNG,C. & STOLLAR,B.D. (1989) J.IMMUNOL.,142,4027-4033.
31) **TH3'CL:** DERSIMONIAN,H.,MCADAM,K.P.W.J.,MACKWORTH-YOUNG,C. & STOLLAR,B.D. (1989) J.IMMUNOL.,142,4027-4033.
32) **Humkv325'CL:** KIPPS,T.J.,TOMHAVE,E.,CHEN,P.P. & CARSON,D.A. (1988) J.EXP.MED.,167,840-852.
33) **EV1-15'CL:** NEWKIRK,M.M.,GRAM,H.,HEINRICH,G.F.,OSTBERG,L.,CAPRA,J.D. & WASSERMAN,R.L. (1988) J.CLIN.INVEST.,81,1511-1518.
34) **IARC/BL41'CL:** KLOBECK,H.G,MEINDL,A.,COMBRIATO,G.,SOLOMON,A. & ZACHAU,H.G. (1985) NUCL.ACIDS RES.,13,6499-6513.
35) **Humkv305'CL:** CHEN,P.P.,ALBRANDT,K.,ORIDA,N.K.,RADOUX,V.,CHEN,E.Y.,SCHRANTZ,R.,LIU,F.-T. & CARSON,D.A. (1986) PROC.NATL.ACAD.SCI.USA,83,8318-8322. (CHECKED BY AUTHOR 10/06/87)
36) **LS1'CL:** SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
37) **LS2'CL:** SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.

REFERENCE: SIGNAL PEPTIDES OF HUMAN KAPPA LIGHT CHAINS (cont'd)

38) **LS4'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
39) **LS5'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
40) **LS6'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
41) **LS7'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
42) **LS8'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
43) **Vg'CL**: *PECH,M. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,24,9229-9236.*
44) **Vh'CL**: *PECH,M. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,24,9229-9236.*
45) **CLL'CL**: JIRIK,F.R.,SORGE,J.,FONG,S.,HEITZMANN,J.G.,CURD,J.G.,CHEN,P.P.,GOLDFIEN,R. & CARSON,D.A. (1986) PROC.NAT.ACAD.SCI.USA,83,2195-2199.
46) **Humkv328'CL**: CHEN,P.P.,ROBBINS,D.L.,JIRIK,F.R.,KIPPS,T.J. & CARSON,D.A. (1987) J.EXP.MED,166,1900-1905.
47) **Humka31es'CL**: CHEN,P.P.,ROBBINS,D.L.,JIRIK,F.R.,KIPPS,T.J. & CARSON,D.A. (1987) J.EXP.MED,166,1900-1905.
48) **GF4/1.1'CL**: GILLIES,S.D.,DORAI,H.,WESOLOWSKI,J.,MAJEAU,G.,YOUNG,D.,BOYD,J.,GARDNER,J. & JAMES,K. (1989) BIO/TECH.,7, 799-804.
49) **K- EV15'CL**: STAVNEZER,J.,KEKISH,O.,BATTER,D.,GRENIER,J.,BALAZS,I.,HENDERSON,E. & ZEGERS,B.J.M. (1985) NUCL.ACIDS RES.,13, 3495-3514.
50) **VKAPPA IV GERMLINE'CL**: KLOBECK,H.G.,BORNKAMMM,G.W.,COMBRIATO,G.,MOCIKAT,R.,POHLENZ,H.D. & ZACHAU,H.G. (1985) NUCL.ACIDS RES.,13,6515-6529.
51) **PB17IV'CL**: MARSH,P.,MILLS,F. & GOULD,H. (1985) NUCL.ACIDS RES.,13,6531-6544. (CHECKED BY AUTHOR 03/19/86).
52) **FK-001'CL**: NAKATANI,T.,NOMURA,N.,HORIGOME,K.,OHTSUKA,H. & NOGUCHI,H. (1989) BIO/TECH.,7,805-810.
53) **WALKER'CL**: KLOBECK,H.G.,COMBRIATO,G. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,18,6995-7006.
54) **DAUDI'CL**: KLOBECK,H.G.,COMBRIATO,G. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,18,6995-7006.
55) **VJ1'CL**: KLOBECK,H.G.,BORNKAMMM,G.W.,COMBRIATO,G.,MOCIKAT,R.,POHLENZ,H.D. & ZACHAU,H.G. (1985) NUCL.ACIDS RES.,13, 6515-6529.
56) **HK100'CL**: BENTLEY,D.L. & RABBITTS,T.H. (1980) NATURE,288,730-733. (CHECKED BY AUTHOR 11/30/82)
57) **Va'CL**: PECH,M.,JAENICHEN,H.-R.,POHLENZ,H.-D.,NEUMAIER,P.S.,KLOBECK,H.-G. & ZACHAU,H.G. (1984) J.MOL.BIOL.,176,1-16. (CHECKED BY AUTHOR 12/14/84)
58) **V2'CL**: JAENICHEN,H.-R.,PECH,M.,LINDENMAIER,W.,WILDGRUBER,N. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,5249-5263. (CHECKED BY AUTHOR 12/14/84)
59) **V14'CL**: JAENICHEN,H.-R.,PECH,M.,LINDENMAIER,W.,WILDGRUBER,N. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,5249-5263. (CHECKED BY AUTHOR 12/14/84)
60) **V52'CL**: JAENICHEN,H.-R.,PECH,M.,LINDENMAIER,W.,WILDGRUBER,N. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,5249-5263. (CHECKED BY AUTHOR 12/14/84)
61) **V55'CL**: JAENICHEN,H.-R.,PECH,M.,LINDENMAIER,W.,WILDGRUBER,N. & ZACHAU,H.G. (1984) NUC.ACIDS RES.,12,5249-5263. (CHECKED BY AUTHOR 12/14/84)
62) **K- EVJK11'CL**: STAVNEZER,J.,KEKISH,O.,BATTER,D.,GRENIER,J.,BALAZS,I.,HENDERSON,E. & ZEGERS,B.J.M. (1985) NUCL.ACIDS RES., 13,3495-3514.
63) **PSEUDO VKAPPA 24'CL**: JOHO,R.,GERSHENFELD,H. & WEISSMAN,I.L. (1984) EMBO J.,3,185-191.

GENERAL NOTES: SIGNAL PEPTIDES OF HUMAN KAPPA LIGHT CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
HK100'CL	HUMAN FETAL LIVER DNA	118
HK101'CL	HUMAN FETAL LIVER DNA	125
HK102'CL	HUMAN FETAL LIVER DNA	125
MOPC173B'CL	MOUSE ADULT DNA	121
S107B'CL	MOUSE ADULT MYELOMA DNA	175
L8'CL	MOUSE ADULT LIVER DNA	175
K2'CL	MOUSE EMBRYO DNA	118
MPC11'CL	MOUSE ADULT DNA	242
VKAPPA167'CL	MOUSE ADULT LIVER DNA	365
L6'CL	MOUSE ADULT LIVER DNA	113
L7'CL	MOUSE ADULT LIVER DNA	206
T1'CL	MOUSE ADULT MYELOMA DNA	113
T2'CL	MOUSE ADULT MYELOMA DNA	215
VT1/B'CL	MOUSE ADULT MYELOMA DNA	113
VTNP'CL	MOUSE HYBRIDOMA DNA	177

SPECIFIC NOTES: SIGNAL PEPTIDES OF HUMAN KAPPA LIGHT CHAINS

21) **RPMI6410'CL**: WEIR,L. & LEDER,P. FOUND POSITION -9 AS ARG INSTEAD OF MET.
25) **HIC (R)'CL**: FROM PATIENT WITH CHRONIC LYMPHOCYTIC LEUKEMIA.
26) **HAH 14.1'CL**: cDNA CLONE DERIVED FROM HAH(R).
27) **HAH 14.2'CL**: cDNA CLONE DERIVED FROM HAH(R).
28) **HAH 16.1'CL**: cDNA CLONE DERIVED FROM HAH(R).
29) **NOV'CL**: FROM EPSTEIN-BARR VIRUS TRANSFORMED SALIVARY GLAND LYMPHOCYTES OF PATIENT WITH PRIMARY SJOGREN'S SYNDROME 17.109-CRI+.
30) **8E10'CL**: THIS HYBRIDOMA WAS GENERATED BY FUSION OF PERIPHERAL BLOOD CELLS OF A PATIENT WITH LEPROSY AND THE HUMAN MYELOBLASTOID CELL LINE GM4672.
31) **TH3'CL**: THIS HYBRIDOMA WAS GENERATED BY FUSION OF PERIPHERAL BLOOD CELLS OF A PATIENT WITH LEPROSY AND THE HUMAN MYELOBLASTOID CELL LINE GM4672.
45) **CLL'CL**: FROM HUMAN CHRONIC LEUKEMIA CELL WITH AN IgM ANTI-IgG
46) **Humkv328'CL**: GENE FOR HUMAN RHEUMATOID FACTORS.
47) **Humka31es'CL**: GENE FOR HUMAN RHEUMATOID FACTORS.
52) **FK-001'CL**: IT CAN BE EXPRESSED FUNCTIONALLY IN MOUSE MYELOMA CELLS.

SIGNAL PEPTIDES OF HUMAN LA

	INVARIANT RESIDUES	1 1B9/F2 'CL #	2 BL2 'CL	3 4G1 'CL
-21		---	---	--
-20	MET	MET	MET	ME
-19		ALA	THR	TH
-18		GLY	CYS	CY
-17		PHE	SER	SE
-16		PRO	PRO	PR
-15	LEU	LEU	LEU	LE
-14		LEU	LEU	LE
-13		LEU	LEU	LE
-12		THR	THR	T
-11		---	---	-
-10		LEU	LEU	LE
-9		LEU	LEU	LE
-8		THR	ILE	IL
-7		HIS	HIS	HI
-6	CYS(.95)	CYS	CYS	CY
-5		ALA	THR	TH
-4		GLY	GLY	GL
-3		SER	SER	SE
-2		TRP	TRP	
-1		ALA	ALA	

	OCCURRENCES OF MOST COMMON AMINO ACID	VARI
-21		
-20	15(MET)	
-19	8(THR)	
-18	11(TRP)	
-17	10(THR)	
-16	17(PRO)	
-15	18(LEU)	
-14	14(LEU)	
-13	12(LEU)	
-12	9(THR)	1
-11	6(THR)	
-10	17(LEU)	
-9	17(LEU)	
-8	7(LEU)	
-7	15(HIS)	
-6	18(CYS)	
-5	15(THR)	
-4	17(GLY)	
-3	16(SER)	
-2	7(+)	
-1	9(SER)	

SIGNAL PEPTIDES OF HUMAN LAMBDA LIGHT CHAINS

	INVARIANT RESIDUES	1 1B9/F2 'CL #	2 BL2 'CL	3 4G12 'CL #	4 T2 ;C5 'CL	5 T2 ;C14 'CL	6 Fog-B 'CL #	7 T1 'CL	8 K6H6 'CL	9 K4B8 'CL	10 K5B8 'CL	11 K5G5 'CL	12 K5C7 'CL	13 K6F5 'CL	14 4A 'CL #	15 1B8 'CL	16 Pag-1 'CL #	17 6H-3C4 'CL #	18 H6-3C4 'CL	19 LBV 'CL	# OF SEQUENCES	# OF AMINO ACIDS
-21		---	---	---			---	---	---		---	---	---	---	---		---	---	---	---		
-20	MET	MET	MET	MET			MET	MET	MET		MET	MET	MET	MET	MET		ALA	MET	MET	MET	15	1
-19		ALA	THR	THR			THR	ALA	THR		THR	THR	THR	THR	ALA		ALA	ALA	ALA	ALA	15	2
-18		GLY	CYS	CYS	CYS	CYS	CYS	TRP	TRP		TRP	TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP	17	3
-17		PHE	SER	SER	SER	SER	SER	THR	THR		THR	THR	THR	THR	THR		THR	THR	THR	ALA	17	4
-16		PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO		PRO	PRO	PRO	PRO	PRO	PRO	VAL	PRO	PRO	PRO	18	2
-15	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	18	1
-14		LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE		PHE	PHE	PHE	PHE	LEU	SER	LEU	TRP	TRP	LEU	18	4
-13		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	VAL	GLY	LEU	THR	THR	18	3
-12		THR	THR	THR	THR	THR	THR	LEU	LEU		LEU	LEU	LEU	LEU	PHE		GLY	THR	THR	THR	19	5
-11		---	---	---	---	---	---	---	THR	THR	THR	THR	THR	THR	---	---	---	---	LEU	---	7	2
-10		LEU	LEU	LEU	LEU	LEU	LEU	PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	LEU	19	2
-9		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	THR	19	3
-8		THR	ILE	ILE	ILE	ILE	ILE	SER	LEU	LEU	LEU	LEU	LEU	LEU	THR	THR	SER	THR	LEU	ALA	19	5
-7		HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	CYS	LEU	HIS	LEU	CYS	HIS	19	3
-6	CYS(.95)	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	PRO	THR	THR	ILE	GLY	THR	19	2
-5		ALA	THR	THR	THR	THR	THR	THR	THR	THR	THR	GLY	GLY	GLY	GLY	GLY	GLY	GLY	SER	ASP	19	5
-4		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	SER	VAL	CYS	19	3
-3		SER	SER	SER	SER	SER	SER	PRO	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	VAL	CYS	19	4
-2		TRP	TRP	TRP	TRP	TRP	TRP	LEU	LEU	LEU	LEU	LEU	LEU	LEU	ASN	GLU	VAL	VAL	VAL	TRP	19	5
-1		ALA	ALA	ALA	ALA	ALA	ALA	SER	SER	SER	SER	SER	SER	SER	SER	ALA	THR	VAL	SER	ALA	19	4

	OCCURRENCES OF MOST COMMON AMINO ACID	VARIABILITY
-21		
-20	15(MET)	1.
-19	8(THR)	3.7
-18	11(TRP)	4.6
-17	10(THR)	6.8
-16	17(PRO)	2.1
-15	18(LEU)	1.
-14	14(LEU)	5.1
-13	12(LEU)	4.5
-12	9(THR)	11.
-11	6(THR)	2.3
-10	17(LEU)	2.2
-9	17(LEU)	3.4
-8	7(LEU)	14.
-7	15(HIS)	3.8
-6	18(CYS)	2.1
-5	15(THR)	6.3
-4	17(GLY)	3.4
-3	16(SER)	4.7
-2	7(+)	14.
-1	9(SER)	8.4

. (1986)

)0-1905.
)00-1905.
. (1989) BIO/TECH.,7,

(1985) NUCL.ACIDS RES.,13,

J,H.G. (1985) NUCL.ACIDS

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.MOL.BIOL.,176,1-16.

,12,5249-5263. (CHECKED

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.,12,5249-5263. (CHECKED

.. (1985) NUCL.ACIDS RES.,

ASES OF VARYING LENGTHS.
OR WITHIN POSITION -4.
EFINE THE JOINING AS
ISTED BELOW:

SJOGREN'S SYNDROME

?ROSY AND THE HUMAN

ROSY AND THE HUMAN

PRECURSOR OF:

1) 1B9/F2'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
2) BL2 'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
3) 4G12'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
4) T2:C5'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
5) T2:C14'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
6) Fog-B'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
7) T1'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP I
8) K6H6'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
9) K4B8'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
10) K5B8'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
11) K5G5'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
12) K5C7'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
13) K6F5'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
14) 4A'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP II
15) 1B8'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP III
16) Pag-1'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP III
17) 6H-3C4'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP III
18) H6-3C4'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP IV
19) LBV'CL: HUMAN LAMBDA LIGHT CHAINS SUBGROUP VI

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1) 1B9/F2'CL: CARROLL,W.L.,YU,M.,LINK,M.P. & KORSMEYER,S.J. (1989) J.IMMUNOL.,143,692-698.
2) BL2 'CL: TSUJIMOTO,Y. & CROCE,C.M. (1984) NUCL.ACIDS RES.,12,8407-8414.
3) 4G12'CL: KISHIMOTO,T.,OKAJIMA,H.,OKUMOTO,T. & TANIGUCHI,M. (1989) NUCL.ACIDS RES.,17,4385.
4) T2:C5'CL: BERINSTEIN,N.,LEVY,S. & LEVY,R. (1989) SCIENCE,244,337-339.
5) T2:C14'CL: BERINSTEIN,N.,LEVY,S. & LEVY,R. (1989) SCIENCE,244,337-339.
6) Fog-B'CL: HUGHES-JONES,N.C.,BYE,J.M.,BEALE,D. & COADWELL,J. (1990) BIOCHEM.J.,268,135-140.
7) T1'CL: BERINSTEIN,N.,LEVY,S. & LEVY,R. (1989) SCIENCE,244,337-339.
8) K6H6'CL: LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
9) K4B8'CL: LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
10) K5B8'CL: LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
11) K5G5'CL: LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
12) K5C7'CL: LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
13) K6F5'CL: LEVY,S.,MENDEL,E.,KON,S.,AVNUR,Z. & LEVY,R. (1988) J.EXP.MED.,168,475-489.
14) 4A'CL: ANDERSON,M.L.M.,SZAJNERT,M.F.,KAPLAN,J.C.,MCCOLL,L. & YOUNG,B.D. (1984) NUC.ACIDS RES.,12,6647-6661. (CHECKED BY AUTHOR 05/16/85)
15) 1B8'CL: LARRICK,J.W.,DANIELSSON,L.,BRENNER,C.A.,WALLACE,E.F.,ABRAHAMSON,M.,FRY,K.E. & BORREBAECK,C.A.K. (1989) BIO/TECH., 7,934-938.
16) Pag-1'CL: HUGHES-JONES,N.C.,BYE,J.M.,BEALE,D. & COADWELL,J. (1990) BIOCHEM.J.,268,135-140.
17) 6H-3C4'CL: KOMORI,S.,YAMASAKI,N.,SHIGETA,M.,ISOJIMA,S. & WATANABE,T. (1988) CLIN.EXP.IMMUNOL.,71,508-516.
18) H6-3C4'CL: YAMASAKI,N.,KOMORI,S. & WATANABE,T. (1987) MOL.IMMUNOL.,24,981-985. (CHECKED BY AUTHOR 12/12/87)
19) LBV'CL: ANDERSON,M.L.M.,BROWN,L.,MCKENZIE,E.,KELLOW,J.E. & YOUNG,B.D. (1985) NUC.ACIDS RES.,13,8,2931-2941. (CHECKED BY AUTHOR 08/21/85)

GENERAL NOTES: SIGNAL PEPTIDES OF HUMAN LAMBDA LIGHT CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
S43'CL	MOUSE MYELOMA CDNA	
IG303LAMBDA'CL	MOUSE H2020 MYELOMA DNA	93
IG99LAMBDA'CL	MOUSE EMBRYO DNA	93
WES-IG13'CL	MOUSE EMBRYO DNA	93
MOPC315-26'CL'	MOUSE MYELOMA DNA	93
243'CL	CHICKEN SPLEEN CELL CDNA	

SPECIFIC NOTES: SIGNAL PEPTIDES OF HUMAN LAMBDA LIGHT CHAINS

1) 1B9/F2'CL: FROM A PATIENT WITH B CELL ACUTE LYMPHOCYTIC LEUKEMIA WITH CHARACTERISTIC t(8;14) CYTOGENETIC TRANSLOCATION AT DIAGNOSIS.
3) 4G12'CL: IT RECOGNIZES A TUMOR-ASSOCIATED AND DIFFERENTIATION ANTIGEN OF MW 195,000.
6) Fog-B'CL: THREE-DIMENSIONAL MODEL HAS BEEN CONSTRUCTED FOR THIS ANTIBODY.
14) 4A'CL: FROM HUMAN CHROMOSOME 22 (LAMBDA LIGHT CHAIN)
16) Pag-1'CL: THREE-DIMENSIONAL MODEL HAS BEEN CONSTRUCTED FOR THIS ANTIBODY.
17) 6H-3C4'CL: 6H-3C4 IS AN ESTABLISHED HUMAN-MOUSE HETEROHYBRIDOMA WHICH SECRETES A HUMAN IGM-LAMBDA ANTIBODY. THIS SEQUENCE IS OBTAINED BY LIGATING THE VH GENE WITH HUMAN IGG1 REGION. THE NEW HUMAN IGG1-LAMBDA ANTIBODY FULLY RETAINS THE ORIGINAL SPECIFICITY.

+ THE FOLLOWING WERE EQUALLY AND MOST FREQUENTLY OCCURRING:

AT POSITION	RESIDUES
-2	(TRP,LEU)

SIGNAL PEPTIDES OF MOUSE

	INVARIANT RESIDUES	1 S107A 'CL	2 17/ 'CL
-29		---	
-28	HIS	---	
-27		---	
-26		---	
-25		---	
-24		---	
-23		---	
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-21		---	
-20		---	
-19		---	
-18		---	
-17		---	
-16		MET	
-15		TYR	
-14		ILE	
-13		CYS	
-12		LEU	
-11		LEU	
-10		SER	
-9		ILE	
-8		SER	
-7		TYR	
-6		CYS	
-5		ARG	
-4		CYS	
-3		LEU	
-2		VAL	S
-1		HIS	G

	21 B003= 46/2D7 'CL	22 L XIX 27'CL	23 10-25 'CL
-29	---	---	---
-28	---	---	---
-27	---	---	---
-26	---	---	---
-25	---	---	---
-24	---	---	---
-23	---	---	---
-22	---	---	---
-21	---	---	---
-20	---	---	---
-19	MET	MET	MET
-18	LYS	LYS	LYS
-17	LEU	LEU	LEU
-16	PRO	PRO	PRO
-15	VAL	VAL	VAL
-14	ARG	ARG	ARG
-13	PRO	LEU	LEU
-12	LEU	LEU	LEU
-11	VAL	VAL	VAL
-10	LEU	LEU	LEU
-9	MET	MET	MET
-8	PHE	PHE	PHE
-7	TRP	TRP	TRP
-6	ILE	ILE	ILE
-5	PRO	PRO	PRO
-4	ALA	ALA	ALA
-3	SER	SER	SER
-2	SER	SER	SER
-1	SER	SER	SER

	41 6F8 'CL	42 4D4 'CL	43 K18.1 'CL #	44 RP9 'CL #
-29	---	---	---	
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-21	---	---	---	
-20	---	---	---	
-19	MET	MET	MET	
-18	LYS	LYS	LYS	
-17	LEU	LEU	LEU	
-16	PRO	PRO	PRO	
-15	VAL	VAL	VAL	
-14	ARG	ARG	ARG	
-13	LEU	LEU	LEU	
-12	LEU	LEU	LEU	
-11	VAL	VAL	VAL	
-10	LEU	LEU	LEU	
-9	MET	MET	MET	
-8	PHE	PHE	PHE	
-7	TRP	TRP	TRP	
-6	ILE	ILE	ILE	GI
-5	PRO	PRO	PRO	GI
-4	ALA	ALA	ALA	TI
-3	SER	SER	SER	VJ
-2	SER	SER	SER	SI
-1	SER	SER	SER	SI

SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS

	INVARIANT RESIDUES	1 S107A 'CL	2 17/9 'CL	3 198.5C2 'CL	4 198.3D3 'CL	5 198.5C8 'CL	6 198.4D9 'CL	7 180.2G6 'CL	8 180.6D10 'CL	9 6A4 'CL	10 D23'CL	11 180.7C9 'CL	12 180.5G4 'CL	13 TF5-139 'CL #	14 180.2B2 'CL	15 F6-3 'CL	16 B13 H4C8 'CL	17 MBr1 'CL #	18 MRL-DNA10 'CL	19 K5.1 'CL #	20 BC-1004 'CL
-29		---								---	---					---	---		---	---	
-28	HIS	---								---	---					---	---		---	---	
-27		---								---	---					---	---		---	---	
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-22		---								---	---					---	GLN		---	---	
-21		---								---	---					---	ALA		---	---	
-20		---								MET	MET					MET	GLN		---	---	
-19		---								ASP	ASP					SER	VAL		MET	MET	
-18		---								SER	SER					SER	LEU		LYS	LYS	LYS
-17		---								GLN	GLN					GLN	MET		LEU	LEU	LEU
-16		MET								ALA	ALA					ALA	LEU		PRO	PRO	PRO
-15		TYR				LEU				GLN	GLN				LEU	GLN	LEU		VAL	VAL	VAL
-14		ILE		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL				VAL	VAL	LEU		ARG	ARG	ARG
-13		CYS		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU				LEU	LEU	LEU		LEU	LEU	PRO
-12		LEU		ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE		ILE		ILE	MET	TRP		LEU	LEU	LEU
-11		LEU		SER	SER	SER	SER	SER	SER	LEU	LEU		SER		SER	LEU	VAL		VAL	VAL	VAL
-10		SER		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU		LEU	LEU	SER		LEU	LEU	LEU
-9		ILE		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU		LEU	LEU	GLY		MET	MET	MET
-8		SER		PHE	PHE	PHE	PHE	PHE	PHE	LEU	LEU	PHE	PHE		PHE	LEU	GLU		PHE	PHE	PHE
-7		TYR		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP		TRP	TRP	LYS		TRP	TRP	TRP
-6		CYS		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		VAL	VAL	PHE		ILE	ILE	ILE
-5		ARG		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	LYS		PRO	PRO	PRO
-4		CYS		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	SER		ALA	ALA	ALA
-3		LEU		THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	ALA	THR	THR	THR	VAL	SER	SER	SER
-2		VAL	SER	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	HIS	SER	SER	SER
-1		HIS	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ALA	GLY	GLY	GLY	SER	SER	SER	SER

	21 B003=46/2D7 'CL	22 L XIX 27'CL	23 10-25 'CL	24 5-14 'CL	25 9-40 'CL	26 12-40 'CL	27 3-13 'CL	28 IdB5.7 'CL	29 vk-1A 'CL	30 MOPC-460 'CL	31 vk-1Cf 'CL	32 vk-1B 'CL	33 4-4-20 'CL	34 3-24 'CL	35 MRL-4 'CL	36 17C1 'CL	37 14C3 'CL	38 K1A5 'CL #	39 vk-1C 'CL	40 vl 6-19 'CL
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-19	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET
-18	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS
-17	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-16	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO
-15	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-14	ARG	ARG	ARG	ARG	ARG	ARG	ARG	SER	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG
-13	PRO	LEU	LEU	LEU	LEU	LEU	LEU	VAL	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-12	LEU	LEU	LEU	LEU	LEU	LEU	LEU	VAL	LEU	LEU	LEU	LEU	LEU	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-11	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-9	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	LEU	MET	MET	MET	MET	MET	MET	MET	MET
-8	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
-7	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP
-6	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE
-5	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO
-4	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	VAL
-3	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER
-2	SER		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER
-1	SER	SER	SER	SER	SER	SER	SER	ASP	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER

	41 6F8 'CL	42 4D4 'CL	43 K18.1 'CL #	44 RP93 'CL #	45 17G5 'CL	46 36.5 .7B 'CL	47 W 3129 'CL	48 42.4B .12.2 'CL	49 42.7 B3.2 'CL	50 BXW-14 'CL	51 PaVK 24B 'CL	52 VKAPPA 24B'CL	53 VK-25-39 'CL	54 VK-25-47 'CL	55 PaVK 24.2 'CL	56 PaVK 24.1 'CL	57 PaVK 24A 'CL	58 PaVK 24C 'CL	59 MOPC 167'CL	60 VKAPPA 167'CL #	61 VKAPPA 24A'CL
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-21	---	---	---		---					---	---	---	---	---	---	---	---	---		---	---
-20	---	---	---		---					MET	MET	MET	MET	MET	MET	MET	MET	MET		MET	MET
-19	MET	MET	MET		MET		ASN			MET	ARG	ARG	ARG	ARG	ARG	ARG	ARG	LYS		ARG	ARG
-18	LYS	LYS	LYS		LYS		LEU	SER		SER	PHE	PHE	PHE	PHE	HIS	HIS	CYS	TYR		CYS	CYS
-17	LEU	LEU	LEU		LEU		PRO	PRO		PRO	SER	SER	SER	SER	SER	SER	LEU	SER		SER	LEU
-16	PRO	PRO	PRO		PRO	VAL	VAL	ALA	ALA	ALA	ALA	ALA	ALA	ALA	LEU	LEU	THR	ALA		LEU	ALA
-15	VAL	VAL	VAL		VAL	HIS	HIS	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN		GLN	GLU
-14	ARG	ARG	ARG		ARG	LEU	LEU	PHE	PHE	PHE	LEU	LEU	LEU	LEU	PHE	PHE	PHE	PHE		PHE	PHE
-13	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	ILE	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU
-12	LEU	LEU	LEU		LEU	VAL	VAL	PHE	PHE	PHE	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		GLY	ARG
-11	VAL	VAL	VAL		VAL	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		VAL	LEU
-10	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU
-9	MET	MET	MET		MET	LEU	LEU	VAL	VAL	VAL	VAL	VAL	VAL	VAL	LEU	LEU	VAL	ILE		MET	VAL
-8	PHE	PHE	PHE		PHE	PHE	PHE	LEU	LEU	LEU	LEU	LEU	TRP	TRP	PHE	ILE	LEU	LEU	PHE	PHE	LEU
-7	TRP	TRP	TRP		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	CYS	CYS	TRP	TRP	TRP	TRP	TRP
-6	ILE	ILE	ILE	GLY	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	PHE	ILE	ILE	ILE	ILE	ILE
-5	PRO	PRO	PRO	GLN	PRO	PRO	ARG	ARG	ARG	ARG	PRO	PRO	PRO	PRO	SER	SER	PRO	PRO	SER	SER	PRO
-4	ALA	ALA	ALA	THR	ALA	ALA	ALA	GLU	GLU	GLU	GLY	GLY	GLY	GLY	GLY	ARG	GLY	GLY	GLY	GLY	GLY
-3	SER	SER	SER	VAL	SER	SER	SER	THR	THR	THR	ALA	SER	SER	SER	VAL	VAL	ALA	SER	VAL	VAL	ALA
-2	SER	SER	SER	SER	SER	ARG	ARG	ASN	ASN	ASN	THR	THR	THR	THR	SER	SER	THR	THR	SER	SER	THR
-1	SER	SER	SER	SER	SER	GLY	GLY	GLY	GLY	GLY	GLY	ALA	ALA	ALA	GLY	GLY	GLY	GLY	GLY	GLY	GLY

12,6647-6661. (CHECKED BY

CK,C.A.K. (1989) BIO/TECH.,

71,508-516.
THOR 12/12/87)
,8,2931-2941. (CHECKED BY

BASES OF VARYING LENGTHS.
, OR WITHIN POSITION -4.
DEFINE THE JOINING AS
LISTED BELOW:

CYTOGENETIC TRANSLOCATION

MBDA ANTIBODY. THIS
GG1-LAMBDA ANTIBODY FULLY

SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS (cont'd)

	62 MPC11 'CL	63 MOPC 321	64 2.7. 1G.10 'CL #	65 VK- 21G 'CL	66 Vk- 21A 'CL	67 05 'CL #	68 11 'CL #	69 12 'CL #	70 4.3. 6F8 'CL	71 MOPC 63	72 13 'CL #	73 30 'CL #	74 2B2 'CL #	75 12C4 'CL #	76 MRL- Histone7 'CL	77 7B6 'CL #	78 MRL-22 'CL	79 VABE8 'CL	80 18-2-3 'CL	81 5D3 'CL #	82 6G11 'CL #	83 37A4 'CL #	84 T3C 'CL #
-29	---	---	---	---	---	---	---	---	---	---	---	---			---		---		---	---		---	
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-21	---	---	---	MET	MET	---	---	---	---	---	---	---			ASP		ASP		ASP	ASP		ASP	
-20	MET	MET	MET	GLU	GLU	MET	MET	MET	MET	MET	MET	MET			PHE		PHE		PHE	PHE		PHE	
-19	GLU	GLU	ASP	SER	LYS	GLU	GLU	GLU	GLU	GLU	GLU	GLU			GLN		GLN		LEU	LEU		GLN	
-18	THR	THR	THR	ASP	ASP	THR	THR	THR	THR	THR	THR	THR			VAL		VAL		VAL	VAL		VAL	
-17	ASP	ASP	ASP	THR	THR	ASP	ASP	ASP	ASP	ASP	ASP	ASP	GLN	GLN	GLN		GLN		GLN	GLN	GLN	GLN	
-16	THR	THR	THR	LEU	LEU	THR	THR	THR	THR	THR	THR	THR			ILE		ILE		ILE	ILE	ILE	ILE	
-15	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			PHE	PHE	PHE		PHE	PHE	PHE	PHE	
-14	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		SER	SER	SER	SER		SER	SER	SER	SER	
-13	LEU	LEU	LEU	TRP	TRP	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE	PHE	PHE		PHE	PHE	PHE	PHE	
-12	TRP	TRP	TRP	VAL	VAL	TRP	TRP	TRP	TRP	TRP	TRP	TRP	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	
-11	VAL	VAL	VAL	LEU	LEU	VAL	VAL	VAL	VAL	VAL	VAL	VAL			LEU		LEU		LEU	LEU		LEU	
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	ILE	ILE	ILE	ILE	ILE		ILE	ILE		ILE	
-9	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	SER	SER	SER	SER	SER		SER	SER	SER	SER	
-8	LEU	LEU	LEU	TRP	TRP	LEU	LEU	LEU	LEU	LEU	ARG	LEU	ALA	ALA	ALA	ALA	ALA		ALA	ALA	ALA	ALA	
-7	TRP	TRP	TRP	VAL	VAL	TRP	TRP	TRP	TRP	TRP	TRP	TRP	SER	SER	SER	SER	SER		SER	SER	SER	SER	
-6	VAL	VAL	VAL	PRO	PRO	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
-5	PRO	PRO	PRO	GLY	GLY	PRO	PRO	PRO	PRO	PRO	PRO	PRO	ILE	ILE	ILE	ILE	ILE	LEU	ALA	ALA	ILE	ILE	
-4	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	
-3	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	THR	THR	THR	THR	SER	SER	SER	SER	THR	SER	
-2	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	SER
-1	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY

	85 L8'CL #	86 S107B 'CL #	87 T2E(1) 'CL #	88 38CV3 'CL	89 38CV4 'CL	90 V-K10 ARS-A 'CL #	91 AC- 1001 'CL	92 7F11 'CL	93 2H1 'CL #	94 H12 'CL	95 5-27 'CL	96 18C10 'CL	97 38C13 'CL	98 38C 'CL	99 PC613 'CL	100 38C13V 'CL #	101 MOPC 173B 'CL	102 T1 'CL	103 KZA 'CL	104 RFT2 'CL #	105 Lym-1 'CL
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-22	MET	MET				---			---	---	---	---					MET		---	---	
-21	ASP	ASP				---			---	---	---	---					ASP		---	---	MET
-20	LEU	LEU				MET		MET	MET	MET	---	MET					MET		MET	MET	SER
-19	GLN	GLN				ILE		MET	MET	MET	MET	MET	GLU		ARG		ARG	ARG	SER	SER	VAL
-18	VAL	VAL				ALA		SER	SER	SER	SER	SER	THR		PRO		ALA	THR	VAL	VAL	PRO
-17	GLN	GLN				SER		SER	SER	SER	SER	SER	SER		SER		PRO	PRO	LEU	LEU	THR
-16	ILE	ILE				ALA		ALA	ALA	ALA	ALA	ALA	ILE		ILE		ALA	ALA	THR	THR	GLN
-15	ILE	ILE				GLN		GLN	GLN	GLN	GLN	GLN	GLN		GLN		GLN	GLN	GLN	GLN	VAL
-14	SER					PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE		PHE		VAL	PHE	VAL	VAL	LEU
-13	PHE	PHE		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		PHE	LEU	LEU	LEU	GLY
-12	LEU	LEU		LEU	LEU	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		GLY	GLY	ALA	ALA	LEU
-11	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		PHE	ILE	LEU	LEU	LEU
-10	ILE	ILE		ILE	ILE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU
-9	ILE	SER		SER	SER	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU
-8	VAL	VAL		VAL	VAL	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE		LEU	LEU	LEU	LEU	TRP
-7	THR	THR		THR	THR	CYS	CYS	CYS	CYS	CYS	CYS	CYS	TRP	TRP	TRP		TRP	TRP	TRP	TRP	LEU
-6	VAL	VAL		VAL	VAL	PHE	PHE	PHE	PHE	PHE	PHE	PHE	LEU	LEU	LEU		PHE	PHE	LEU	LEU	THR
-5	ILE	ILE		ILE	ILE	GLN	GLN	GLN	GLN	GLN	GLN	GLN	HIS	HIS	HIS		PRO	PRO	THR	THR	VAL
-4	MET	MET		VAL	VAL	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		GLY	GLY	GLY	GLY	GLY
-3	SER	SER		SER	SER	THR	THR	THR	ALA	THR	THR	THR	ALA	ALA	ALA		ALA	ILE	ALA	ALA	VAL
-2	ARG	ARG		ASN	ASN	ARG	ARG	ARG	ARG	ARG	ARG	ARG	GLN	GLN	GLN	GLN	ARG	LYS	ARG	ARG	ARG
-1	GLY	GLY	GLY	GLY	GLY	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS

	106 Vk33 'CL	107 10.2.8 'CL	108 VT1/B 'CL	109 L6'CL	110 2-2G4 'CL	111 2-2C8 'CL	112 B16.2K1 'CL	113 UN34 .11 'CL	114 C.AKR 'CL	115 SP/CamEi 'CL	116 PERA/EI 'CL	117 4.2. 6D12 'CL	118 SK/CamRk 'CL	119 C8.5Vk 'CL	120 UN42 .5 'CL	121 BXN-16 'CL	122 K3 'CL	123 C.C58 M75 'CL
-29	---		---	---	---			---	---	---	---	---	---		---	---	---	
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-23	---		---	---	---			---	---	---	---	GLY	---		---	---	---	
-22	---		---	---	MET			MET	---	---	---	ILE	---		MET	MET	---	
-21	---		---	---	ASP			ASP	---	---	---	LYS	---		ASP	ASP	---	
-20	MET		MET	MET	MET			MET	MET	MET	MET	MET	MET		MET	ILE	---	MET
-19	LYS		ARG	ARG	ARG			ARG	LYS	LYS	LYS	GLU	LYS		ARG	ARG	---	LYS
-18	PHE		THR	THR	ALA			ALA	SER	SER	SER	SER	SER		ALA	ALA	---	SER
-17	PRO		PRO	PRO	PRO			PRO	GLN	GLN	GLN	GLN	GLN		PRO	PRO	---	GLN
-16	SER		ALA	ALA	ALA			ALA	THR	THR	THR	THR	THR		ALA	ALA	---	THR
-15	GLN		GLN	GLN	GLN			GLN	GLN	GLN	GLN	GLN	GLN		GLN	GLN	MET	GLN
-14	LEU		PHE	PHE	PHE			PHE	VAL	VAL	VAL	VAL	VAL		PHE	PHE	TRP	VAL
-13	LEU		LEU	LEU	PHE			PHE	PHE	PHE	PHE	PHE	PHE		PHE	LEU	GLY	PHE
-12	LEU		GLY	GLY	GLY			GLY	ILE	ILE	ILE	VAL	VAL		GLY	GLY	SER	ILE
-11	LEU		ILE	ILE	ILE			ILE	PHE	PHE	PHE	PHE	PHE		ILE	ILE	VAL	PHE
-10	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	VAL		LEU	LEU	PRE	LEU
-9	LEU	TRP	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	THR	LEU
-8	PHE	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	PHE	LEU
-7	GLY	THR	TRP	TRP	TRP			TRP	CYS	CYS	CYS	TRP	CYS		TRP	TRP	SER	CYS
-6	ILE	VAL	PHE	PHE	PHE	PHE	PHE	PHE	VAL	VAL	VAL	LEU	VAL	VAL	PHE	PHE	ILE	VAL
-5	PRO	VAL	PRO	PRO	PRO	PRO	PRO	PRO	SER	SER	SER	SER	SER	SER	PRO	PRO	VAL	SER
-4	GLY	VAL	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ASP	GLY	GLY	ASP	GLY
-3	MET	VAL	ILE	ILE	ILE	ILE	ILE	ILE	ALA	ALA	ALA	VAL	ALA	SER	ILE	ALA	ALA	ALA
-2	ILE	ARG	LYS	LYS	ARG	ARG	ARG	ARG	HIS	HIS	HIS	ASP	HIS	ARG	ARG	ARG	ARG	HIS
-1	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	GLY	GLY	GLY	GLY	GLY	ALA	CYS	CYS	CYS	GLY

SIGNAL PEPTIDES OF MOU

	124 C.C58 VkSer 'CL	125 MRL- RF28 (VK28) 'CL	126 E225 'CL #
-29	---	---	---
-28	---	---	---
-27	---	---	---
-26	---	---	---
-25	---	---	---
-24	---	---	---
-23	---	---	---
-22	---	---	---
-21	---	---	---
-20	MET	MET	ME
-19	LYS	LYS	GL
-18	SER	SER	TH
-17	GLN	GLN	HI
-16	THR	THR	SE
-15	GLN	GLN	GL
-14	VAL	VAL	VA
-13	PHE	PHE	PH
-12	ILE	ILE	VA
-11	PHE	PHE	TY
-10	LEU	LEU	ME
-9	LEU	LEU	LE
-8	LEU	LEU	LE
-7	CYS	CYS	TR
-6	VAL	VAL	LE
-5	SER	SER	SE
-4	GLY	GLY	GL
-3	ALA	ALA	VA
-2	HIS	HIS	GL
-1	GLY	GLY	GL

	144 14.6b.1 'CL	145 26.4.1 'CL	1 5
-29			
-28			
-27			
-26			
-25			
-24			
-23			
-22			
-21	ASP	ASP	
-20	PHE	PHE	
-19	GLN	GLN	
-18	VAL	VAL	
-17	GLN	GLN	
-16	ILE	ILE	
-15	PHE	PHE	
-14	SER	SER	
-13	PHE	PHE	
-12	LEU	LEU	
-11	LEU	LEU	
-10	ILE	ILE	
-9	SER	SER	
-8	ALA	ALA	
-7	SER	SER	
-6	VAL	VAL	
-5	ILE	ILE	
-4	ILE	ILE	
-3	SER	SER	
-2	ARG	ARG	
-1	GLY	GLY	

	168 4C11 'CL	169 567 'CL #	170 10.4 'CL #	17 3C 'C #
-29	---	---		
-28	---	---		
-27	---	---		
-26	---	---		
-25	---	---		
-24	---	---		
-23	---	---		
-22	MET	MET		
-21	HIS	ASP		
-20	PHE	PHE		
-19	GLN	GLN		
-18	VAL	VAL		
-17	GLN	GLN		
-16	ILE	ILE		I
-15	PHE	PHE		P
-14	SER	SER		
-13	PHE	PHE		
-12	LEU	LEU		L
-11	LEU	LEU		L
-10	ILE	ILE		I
-9	SER	SER		S
-8	ALA	ALA		A
-7	SER	SER		S
-6	VAL	VAL		V
-5	ILE	ILE		I
-4	MET	ILE		I
-3	SER	SER		S
-2	ARG	ARG		A
-1	GLY	GLY	GLY	G

SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS (cont'd)

	124 C.C58 VkSer 'CL	125 MRL-RF28 (VK28) 'CL	126 E225 'CL	127 MPC 11	128 A003=40/5G7 'CL	129 CEA 66-E3 'CL	130 VTNP 'CL	131 CEM 231.6.7 'CL	132 BALB/c VkSer 'CL	133 B6.2 'CL	134 MOPC 21	135 17-1A 'CL	136 E7'CL	137 MRL-RF24 'CL	138 L7'CL	139 T2'CL	140 87.92.6 'CL	141 45.21.1 'CL	142 10C11 'CL	143 18G8 'CL
-29	---	---	---	MET		---	---	---	---	MET	MET	MET		---	---	---		---	---	---
-28	---	---	---	HIS		---	---	---	---	HIS	HIS	HIS		---	---	---		---	---	---
-27	---	---	---	HIS		---	---	---	---	GLN	GLN	GLN		---	---	---		---	---	---
-26	---	---	---	THR		---	---	---	---	ILE	THR	THR		---	---	---		---	---	---
-25	---	---	---	SER		---	---	---	---	SER	SER	SER		---	---	---		---	---	---
-24	---	---	---	MET		MET	MET	---	---	MET	MET	MET		---	---	---		---	---	---
-23	---	---	---	GLY		GLY	GLY	---	---	GLY	GLY	GLY	GLY	---	---	---		---	---	---
-22	---	---	---	ILE		ILE	PHE	---	---	ILE	ILE	ILE	ILE	---	---	---		MET	MET	MET
-21	---	---	---	LYS		LYS	LYS	---	---	LYS	LYS	LYS	LYS	---	---	---		ASP	ASP	ASP
-20	MET	MET	MET	MET		MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	GLU	PHE	PHE	PHE
-19	LYS	LYS	GLU	GLU		GLU	GLU	GLU	LYS	GLU	GLU	GLU	GLU	ARG	VAL	VAL	SER	GLN	GLN	GLN
-18	SER	SER	THR	SER		THR	SER	PHE	SER	SER	SER	SER	SER	PHE	SER	SER	LYS	VAL	VAL	VAL
-17	GLN	GLN	HIS	GLN		HIS	HIS	GLN	GLN	GLN	GLN	GLN	GLN	GLN	THR	THR	PHE	GLN	GLN	GLN
-16	THR	THR	SER	ILE		SER	THR	THR	THR	THR	THR	THR	THR	VAL	PRO	PRO	GLN	ILE	ILE	ILE
-15	GLN	GLN	GLN	GLN		GLN	GLN	GLN	GLN	GLN	LEU	LEU	LEU	GLN	GLN	GLN	PHE	PHE	PHE	PHE
-14	VAL	VAL	VAL	VAL		VAL	ALA	VAL	VAL	VAL	VAL	VAL	VAL	PHE	PHE	SER	SER	SER	SER	SER
-13	PHE	PHE	PHE	PHE		PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	LEU	LEU	LEU	VAL	GLY	LEU	LEU
-12	ILE	ILE	VAL	VAL		VAL	VAL	VAL	VAL	VAL	ILE	ILE	ILE	GLY	VAL	VAL	VAL	LEU	LEU	LEU
-11	PHE	PHE	TYR	PHE		TYR	PHE	PHE	PHE	TYR	SER	SER	SER	LEU	PHE	PHE	LEU	LEU	LEU	LEU
-10	LEU	LEU	MET	VAL		MET	ALA	VAL	LEU	MET	ILE	ILE	ILE	LEU	LEU	LEU	HIS	ILE	ILE	ILE
-9	LEU	LEU	LEU	PHE		LEU	PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	SER	SER	SER
-8	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	LEU	ALA	ALA	ALA
-7	CYS	CYS	TRP	TRP		TRP	TRP	TRP	CYS	TRP	TRP	TRP	TRP	TRP	TRP	TRP	SER	SER	SER	SER
-6	VAL	VAL	LEU	LEU		LEU	LEU	LEU	VAL	LEU	LEU	LEU	TYR	SER	PRO	PRO	ILE	VAL	VAL	VAL
-5	SER	SER	SER	SER	ALA	SER	SER	SER	SER	SER	TYR	TYR	TYR	SER	PRO	PRO	SER	ILE	ILE	ILE
-4	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ALA	GLY	GLY	ILE	ILE	ILE
-3	ALA	ALA	VAL	VAL	VAL	VAL	VAL	VAL	ALA	VAL	ALA	ALA	ALA	ALA	SER	---	ALA	SER	SER	SER
-2	HIS	HIS	GLU	ASP	ASP	GLU	ASP	ASP	HIS	ASP	ASP	ASP	ASP	GLN	ARG	---	GLN	ARG	ARG	ARG
-1	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	CYS	GLY	---	CYS	GLY	GLY	GLY

	144 14.6b.1 'CL	145 26.4.1 'CL	146 5G11 'CL	147 14B4 'CL	148 58.2C .10.3 'CL	149 6B10 'CL	150 4F10 'CL	151 6F6 'CL	152 7C6 'CL	153 8E3 'CL	154 H26 'CL	155 3F2 'CL	156 12G10 'CL	157 10G10 'CL	158 3E3 'CL	159 13D4 'CL	160 9G6 'CL	161 3B6 'CL	162 11G3 'CL	163 564 'CL	164 550 'CL	165 563 'CL	166 42.5 D4.2 'CL	167 37.1 B5.2 'CL
-29					---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-28					---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-27					---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-26					---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-25																								
-24					---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-23					---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-22					MET	MET		MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	ASP	ASP
-21	ASP	ASP			ASP	ASP		ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP
-20	PHE	PHE			PHE	PHE		PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
-19	GLN	GLN			GLN	GLN		GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN
-18	VAL	VAL			VAL	VAL		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-17	GLN	GLN	GLN		GLN	GLN		GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN
-16	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE
-15	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
-14	SER	SER		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER
-13	PHE	PHE		PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
-12	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-11	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-10	ILE	ILE		ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE
-9	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER
-8	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
-7	SER	SER	SER	SER	SER			SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER
-6	VAL	VAL		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-5	ILE	ILE		ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE
-4	ILE	ILE			LEU	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE
-3	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER
-2	ARG	ARG		ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG
-1	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY

	168 4C11 'CL	169 567 'CL	170 10.4 'CL	171 3C5 'CL	172 5G2 'CL	173 70Z/3 'CL	174 2H7 'CL	175 L6' 'CL	176 2C7 'CL	177 38CV1 'CL	178 TEPC (CAL20) 105 'CL	179 26-10Vk 'CL	180 MPC 11C	181 V-21C 9.5KB 'CL	182 V-21E 1.5KB 'CL	183 V-21E 1.6KB 'CL	184 V-21B 18KB 'CL	185 V-21B 16KB 'CL	186 91A3 'CL	187 MOPC 41' CL	188 MOPC 41A	189 MOPC 41B
-29	---	---			---	---	---	---			---		---	---	---	---	---	---	---	---	---	---
-28	---	---			---	---	---	---			---		---	---	---	---	---	---	---	---	---	---
-27	---	---			---	---	---	---			---		---	---	---	---	---	---	---	---	---	---
-26	---	---			---	---	---	---			---		---	---	---	---	---	---	---	---	---	---
-25	---	---			---	---	---	---			---		---	---	---	---	---	---	---	---	---	---
-24	---	---			---	---	---	---			---		---	---	---	---	---	---	---	---	---	---
-23	---	---			---	---	---	---			---		---	---	---	---	---	---	---	MET	MET	---
-22	MET	MET			MET	---	MET	MET			---		---	---	---	---	---	---	---	ASP	ASP	---
-21	HIS	ASP			ASP	---	ASP	ASP			---		---	---	---	---	---	---	---	---	---	---
-20	PHE	PHE			PHE	MET	PHE	PHE			---		MET	MET	MET	MET	MET	MET	MET	MET	MET	MET
-19	GLN	GLN		GLN	ASP	GLN	GLN				MET	MET	GLU	GLU	GLU	GLU	GLU	GLU	ILE	ARG	ARG	ARG
-18	VAL	VAL		VAL	PHE	VAL	VAL				LYS	LYS	THR	THR	THR	SER	THR	ALA	ALA	ALA	ALA	ALA
-17	GLN	GLN		GLN	GLN	GLN	GLN				LEU	LEU	ASP	ASP	ASP	ASP	ASP	ASP	SER	PRO	PRO	PRO
-16	ILE	ILE	ILE	ILE	VAL	ILE	ILE	ILE			PRO	PRO	THR	THR	THR	THR	THR	ALA	ALA	ALA	ALA	ALA
-15	PHE	PHE	PHE	PHE	GLN	PHE	PHE	PHE			VAL	VAL	LEU	LEU	LEU	LEU	LEU	LEU	GLN	GLN	GLN	GLN
-14	SER	SER			SER	ILE	SER	SER	SER		ARG	ARG	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	ILE	ILE
-13	PHE	PHE			PHE	PHE	PHE	PHE		PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE
-12	LEU	LEU		LEU	LEU	SER	LEU	LEU		LEU	LEU	LEU	TRP	TRP	TRP	TRP	TRP	TRP	GLY	GLY	GLY	GLY
-11	LEU	LEU		LEU	LEU	PHE	LEU	LEU		LEU	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	LEU	PHE	PHE	PHE
-10	ILE	ILE		ILE	ILE	LEU	ILE	ILE	ILE	ILE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-9	SER	SER		SER	SER	LEU	SER	SER	SER	SER	MET	MET	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-8	ALA	ALA		ALA	ALA	ILE	ALA	ALA		VAL	PHE	PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-7	SER	SER		SER	SER	SER	SER	SER	SER	THR	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	CYS	LEU	LEU	LEU
-6	VAL	VAL		VAL	VAL	ALA	VAL	VAL		VAL	ILE	VAL	VAL	VAL	VAL	VAL	VAL	VAL	PHE	PHE	PHE	PHE
-5	ILE	ILE		ILE	ILE	SER	ILE	ILE		ILE	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	GLN	GLN	PRO	PRO
-4	MET	ILE		ILE	MET	GLY	ILE	MET		LEU	ALA	ALA	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
-3	SER	SER		SER	SER	---	ALA	SER	SER	THR	SER	SER	---	SER	SER	SER	SER	SER	THR	THR	THR	THR
-2	ARG	ARG		ARG	ARG	---	ARG	ARG	ARG	ASN	SER	SER	---	THR	THR	THR	THR	THR	ARG	ARG	ARG	ARG
-1	GLY	GLY	GLY	GLY	GLY	---	GLY	GLY	GLY	GLY	SER	SER	---	GLY	GLY	GLY	GLY	GLY	CYS	CYS	CYS	CYS

SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS (cont'd)

	190 K2 'CL	191 40-140 'CL	192 MOPC 21'CL	193 19,22.1 'CL	194 2154 'CL	195 I(K0) 'CL	196 5563 (C3H) L	197 42.9 E5.2 'CL	198 4.14.3 'CL	# OF SEQUENCES	# OF AMINO ACIDS	OCCURRENCES OF MOST COMMON AMINO ACID	VARIABILITY
-29	---	---	MET	---		---	---		---	6	2	5(MET)	2.4
-28	---	---	HIS	---		---	---		---	6	1	6(HIS)	1.
-27	---	---	GLN	---		---	---		---	6	2	5(GLN)	2.4
-26	---	---	THR	---		---	---		---	6	3	4(THR)	4.5
-25	---	---	SER	---		---	---		---	7	3	5(SER)	4.2
-24	---	---	MET	---		---	---		---	10	3	8(MET)	3.7
-23	---	---	GLY	---		---	---		---	11	2	10(GLY)	2.2
-22	---	---	ILE	MET		---	MET		---	54	4	43(MET)	5.
-21	---	---	LYS	ASP		MET			---	59	5	43(ASP)	6.9
-20	---	MET	MET	PHE		ASP			MET	119	8	75(MET)	13.
-19	---	ARG	GLU	GLN		ILE			MET	150	11	35(+)	47.
-18	---	THR	SER	VAL		ARG	PHE		SER	153	13	39(VAL)	51.
-17	---	PRO	GLN	GLN		SER			PRO	156	9	62(GLN)	23.
-16	---	ALA	THR	ILE		VAL	VAL		ALA	162	9	46(ILE)	32.
-15	MET	GLN	LEU	PHE		SER		GLN	GLN	167	10	60(GLN)	28.
-14	TRP	PHE	VAL	SER		SER		PHE	PHE	171	8	45(SER)	30.
-13	GLY	LEU	PHE	PHE		LEU	PHE	LEU	LEU	177	9	94(LEU)	17.
-12	PRO	GLY	ILE	LEU		ARG	SER	PHE	PHE	180	11	80(LEU)	25.
-11	PHE	ILE	SER	LEU		GLY	PHE	LEU	LEU	175	7	82(LEU)	15.
-10	SER	LEU	ILE	ILE		LEU	LEU	LEU	LEU	180	8	117(LEU)	12.
-9	HIS	LEU	LEU	SER		LEU	LEU	VAL	VAL	182	10	85(LEU)	21.
-8	PHE	LEU	LEU	ALA		CYS	MET	LEU	LEU	183	11	74(LEU)	27.
-7	SER	TRP	CYS	SER		LEU	SER	TRP	TRP	183	9	101(TRP)	16.
-6	ILE	PHE	LEU	VAL		PRO		ILE	ILE	186	9	86(VAL)	19.
-5	VAL	PRO	TYR	ILE	VAL	PRO	SER	ARG	ARG	190	13	71(PRO)	35.
-4	GLY	GLY	GLY	ILE	MET	SER	VAL	GLU	GLU	189	12	95(GLY)	24.
-3	ALA	ILE	ALA	SER	SER	TRP		ALA	THR	189	8	98(SER)	15.
-2	ARG	LYS	ASP	ARG	ARG	PRO		ASN	ASN	190	13	75(ARG)	33.
-1	CYS	CYS	GLY	GLY	GLY	ARG		GLY	GLY	194	7	121(GLY)	11.

PRECURSOR OF:

1) S107A'CL: MOUSE KAPPA I
2) 17/9'CL: MOUSE KAPPA LI
3) 198.5C2'CL: MOUSE KAPP
4) 198.3D3'CL: MOUSE KAPP
5) 198.5C8'CL: MOUSE KAPP
6) 198.4D9'CL: MOUSE KAPP
7) 180.2G6'CL: MOUSE KAPP
8) 180.6D10'CL: MOUSE KAP
9) 6A4'CL: MOUSE KAPPA LI
10) D23'CL: MOUSE KAPPA LI
11) 180.7C9'CL: MOUSE KAPP
12) 180.5G4'CL: MOUSE KAPP
13) TF5-139'CL: MOUSE KAPP
14) 180.2B2'CL: MOUSE KAPP
15) F6-3'CL: MOUSE KAPPA L
16) B13H4C8'CL: MOUSE KAPP
17) MBr1'CL: MOUSE KAPPA L
18) MRL-DNA10'CL: MOUSE KA
19) K5.1'CL: MOUSE KAPPA L
20) BC-1004'CL: MOUSE KAPP
21) B003=46/2D7'CL: MOUSE
22) L XIX 27'CL: MOUSE KAP
23) 10-25'CL: MOUSE KAPPA
24) 5-14'CL: MOUSE KAPPA I
25) 9-40'CL: MOUSE KAPPA I
26) 12-40'CL: MOUSE KAPPA
27) 3-13'CL: MOUSE KAPPA I
28) Id85.7'CL: MOUSE KAPP
29) vk-1A'CL: MOUSE KAPPA
30) MOPC-460'CL: MOUSE KA
31) vk-1Cf'CL: MOUSE KAPP
32) vk-1B'CL: MOUSE KAPPA
33) 4-4-20'CL: MOUSE KAPP
34) 3-24'CL: MOUSE KAPPA
35) MRL-4'CL: MOUSE KAPPA
36) 17C1'CL: MOUSE KAPPA
37) 14C3'CL: MOUSE KAPPA
38) K1A5'CL: MOUSE KAPPA
39) vk-1C'CL: MOUSE KAPPA
40) v16-19'CL: MOUSE KAPP
41) 6F8'CL: MOUSE KAPPA L
42) 4D4'CL: MOUSE KAPPA L
43) K18.1'CL: MOUSE KAPPA
44) RP93'CL: MOUSE KAPPA
45) 17G5'CL: MOUSE KAPPA
46) 36.5.7B'CL: MOUSE KAP
47) W3129'CL: MOUSE KAPPA
48) 42.4B.12.2'CL: MOUSE
49) 42.7B3.2'CL: MOUSE KA
50) BXN-14'CL: MOUSE KAPP
51) PaVK24B'CL: MOUSE KAP
52) VKAPPA 24B'CL: MOUSE
53) VK-25-39'CL: MOUSE KA
54) VK-25-47'CL: MOUSE KA
55) PaVK24.2'CL: MOUSE KA
56) PaVK24.1'CL: MOUSE KA
57) PaVK24A'CL: MOUSE KAP
58) PaVK24C'CL: MOUSE KAP
59) MOPC167'CL: MOUSE KAP
60) VKAPPA167'CL: MOUSE K
61) VKAPPA 24A'CL: MOUSE
62) MPC11'CL: MOUSE KAPPA
63) MOPC321: MOUSE KAPPA
64) 2.7.1G.10'CL: MOUSE K
65) Vk-21G'CL: MOUSE KAPP
66) Vk-21A'CL: MOUSE KAPP
67) 05'CL: MOUSE KAPPA LI
68) 11'CL: MOUSE KAPPA LI
69) 12'CL: MOUSE KAPPA LI
70) 4.3.6F8'CL: MOUSE KAP
71) MOPC63: MOUSE KAPPA L
72) 13'CL: MOUSE KAPPA LI
73) 30'CL: MOUSE KAPPA LI
74) 2B2'CL: MOUSE KAPPA L
75) 12C4'CL: MOUSE KAPPA
76) MRL-Histone7'CL: MOUS
77) 7B6'CL: MOUSE KAPPA L
78) MRL-22'CL: MOUSE KAPP
79) VABE8'CL: MOUSE KAPPA
80) 18-2-3'CL: MOUSE KAPP
81) 5D3'CL: MOUSE KAPPA L
82) 6G11'CL: MOUSE KAPPA
83) 37A4'CL: MOUSE KAPPA
84) T3C'CL: MOUSE KAPPA L
85) L8'CL: MOUSE KAPPA LI
86) S107B'CL: MOUSE KAPPA
87) T2E(1)'CL: MOUSE KAPP
88) 38CV3'CL: MOUSE KAPPA
89) 38CV4'CL: MOUSE KAPPA
90) V-K10 ARS-A'CL: MOUSE
91) AC-1001'CL: MOUSE KAP
92) 7F11'CL: MOUSE KAPPA
93) 2H1'CL: MOUSE KAPPA L
94) H12'CL: MOUSE KAPPA L
95) 5-27'CL: MOUSE KAPPA
96) 18C10'CL: MOUSE KAPPA
97) 38C13'CL: MOUSE KAPPA
98) 38C'CL: MOUSE KAPPA L
99) PC613'CL: MOUSE KAPPA
100) 38C13V'CL: MOUSE KAPP
101) MOPC173B'CL: MOUSE KA
102) T1'CL: MOUSE KAPPA LI
103) K2A'CL: MOUSE KAPPA I

PRECURSOR OF:

1) S107A'CL: MOUSE KAPPA LIGHT CHAINS I
2) 17/9'CL: MOUSE KAPPA LIGHT CHAINS I
3) 198.5C2'CL: MOUSE KAPPA LIGHT CHAINS I
4) 198.3D3'CL: MOUSE KAPPA LIGHT CHAINS I
5) 198.5C8'CL: MOUSE KAPPA LIGHT CHAINS I
6) 198.4D9'CL: MOUSE KAPPA LIGHT CHAINS I
7) 180.2G6'CL: MOUSE KAPPA LIGHT CHAINS I
8) 180.6D10'CL: MOUSE KAPPA LIGHT CHAINS I
9) 6A4'CL: MOUSE KAPPA LIGHT CHAINS I
10) D23'CL: MOUSE KAPPA LIGHT CHAINS I
11) 180.7C9'CL: MOUSE KAPPA LIGHT CHAINS I
12) 180.5G4'CL: MOUSE KAPPA LIGHT CHAINS I
13) TF5-139'CL: MOUSE KAPPA LIGHT CHAINS I
14) 180.2B2'CL: MOUSE KAPPA LIGHT CHAINS I
15) F6-3'CL: MOUSE KAPPA LIGHT CHAINS I
16) B13H4C8'CL: MOUSE KAPPA LIGHT CHAINS I
17) MBr1'CL: MOUSE KAPPA LIGHT CHAINS I
18) MRL-DNA10'CL: MOUSE KAPPA LIGHT CHAINS II
19) K5.1'CL: MOUSE KAPPA LIGHT CHAINS II
20) BC-1004'CL: MOUSE KAPPA LIGHT CHAINS II
21) B003=46/2D7'CL: MOUSE KAPPA LIGHT CHAINS II
22) L XIX 27'CL: MOUSE KAPPA LIGHT CHAINS II
23) 10-25'CL: MOUSE KAPPA LIGHT CHAINS II
24) 5-14'CL: MOUSE KAPPA LIGHT CHAINS II
25) 9-40'CL: MOUSE KAPPA LIGHT CHAINS II
26) 12-40'CL: MOUSE KAPPA LIGHT CHAINS II
27) 3-13'CL: MOUSE KAPPA LIGHT CHAINS II
28) IdB5.7'CL: MOUSE KAPPA LIGHT CHAINS II
29) vk-1A'CL: MOUSE KAPPA LIGHT CHAINS II
30) MOPC-460'CL: MOUSE KAPPA LIGHT CHAINS II
31) vk-1C#'CL: MOUSE KAPPA LIGHT CHAINS II
32) vk-1B'CL: MOUSE KAPPA LIGHT CHAINS II
33) 4-4-20'CL: MOUSE KAPPA LIGHT CHAINS II
34) 3-24'CL: MOUSE KAPPA LIGHT CHAINS II
35) MRL-4'CL: MOUSE KAPPA LIGHT CHAINS II
36) 17C1'CL: MOUSE KAPPA LIGHT CHAINS II
37) 14C3'CL: MOUSE KAPPA LIGHT CHAINS II
38) K1A5'CL: MOUSE KAPPA LIGHT CHAINS II
39) vk-1C'CL: MOUSE KAPPA LIGHT CHAINS II
40) v16-19'CL: MOUSE KAPPA LIGHT CHAINS II
41) 6F8'CL: MOUSE KAPPA LIGHT CHAINS II
42) 4D4'CL: MOUSE KAPPA LIGHT CHAINS II
43) K18.1'CL: MOUSE KAPPA LIGHT CHAINS II
44) RP93'CL: MOUSE KAPPA LIGHT CHAINS II
45) 17G5'CL: MOUSE KAPPA LIGHT CHAINS II
46) 36.5.7B'CL: MOUSE KAPPA LIGHT CHAINS II
47) W3129'CL: MOUSE KAPPA LIGHT CHAINS II
48) 42.4B.12.2'CL: MOUSE KAPPA LIGHT CHAINS II
49) 42.7B3.2'CL: MOUSE KAPPA LIGHT CHAINS II
50) BXN-14'CL: MOUSE KAPPA LIGHT CHAINS II
51) PaVK24B'CL: MOUSE KAPPA LIGHT CHAINS II
52) VKAPPA 24B'CL: MOUSE KAPPA LIGHT CHAINS II
53) VK-25-39'CL: MOUSE KAPPA LIGHT CHAINS II
54) VK-25-47'CL: MOUSE KAPPA LIGHT CHAINS II
55) PaVK24.2'CL: MOUSE KAPPA LIGHT CHAINS II
56) PaVK24.1'CL: MOUSE KAPPA LIGHT CHAINS II
57) PaVK24A'CL: MOUSE KAPPA LIGHT CHAINS II
58) PaVK24C'CL: MOUSE KAPPA LIGHT CHAINS II
59) MOPC167'CL: MOUSE KAPPA LIGHT CHAINS II
60) VKAPPA167'CL: MOUSE KAPPA LIGHT CHAINS II
61) VKAPPA 24A'CL: MOUSE KAPPA LIGHT CHAINS II
62) MPC11'CL: MOUSE KAPPA LIGHT CHAINS III
63) MOPC321: MOUSE KAPPA LIGHT CHAINS III
64) 2.7.1G.10'CL: MOUSE KAPPA LIGHT CHAINS III
65) Vk-21G'CL: MOUSE KAPPA LIGHT CHAINS III
66) Vk-21A'CL: MOUSE KAPPA LIGHT CHAINS III
67) 05'CL: MOUSE KAPPA LIGHT CHAINS III
68) 11'CL: MOUSE KAPPA LIGHT CHAINS III
69) 12'CL: MOUSE KAPPA LIGHT CHAINS III
70) 4.3.6F8'CL: MOUSE KAPPA LIGHT CHAINS III
71) MOPC63: MOUSE KAPPA LIGHT CHAINS III
72) 13'CL: MOUSE KAPPA LIGHT CHAINS III
73) 30'CL: MOUSE KAPPA LIGHT CHAINS III
74) 2B2'CL: MOUSE KAPPA LIGHT CHAINS IV
75) 12C4'CL: MOUSE KAPPA LIGHT CHAINS IV
76) MRL-Histone7'CL: MOUSE KAPPA LIGHT CHAINS IV
77) 7B6'CL: MOUSE KAPPA LIGHT CHAINS IV
78) MRL-22'CL: MOUSE KAPPA LIGHT CHAINS IV
79) VABE8'CL: MOUSE KAPPA LIGHT CHAINS IV
80) 18-2-3'CL: MOUSE KAPPA LIGHT CHAINS IV
81) 5D3'CL: MOUSE KAPPA LIGHT CHAINS IV
82) 6G11'CL: MOUSE KAPPA LIGHT CHAINS IV
83) 37A4'CL: MOUSE KAPPA LIGHT CHAINS IV
84) T3C'CL: MOUSE KAPPA LIGHT CHAINS IV
85) L8'CL: MOUSE KAPPA LIGHT CHAINS IV
86) S107B'CL: MOUSE KAPPA LIGHT CHAINS IV
87) T2E(1)'CL: MOUSE KAPPA LIGHT CHAINS IV
88) 38CV3'CL: MOUSE KAPPA LIGHT CHAINS IV
89) 38CV4'CL: MOUSE KAPPA LIGHT CHAINS IV
90) V-K10 AR8-A'CL: MOUSE KAPPA LIGHT CHAINS V
91) AC-1001'CL: MOUSE KAPPA LIGHT CHAINS V
92) 7F11'CL: MOUSE KAPPA LIGHT CHAINS V
93) 2H1'CL: MOUSE KAPPA LIGHT CHAINS V
94) H12'CL: MOUSE KAPPA LIGHT CHAINS V
95) 5-27'CL: MOUSE KAPPA LIGHT CHAINS V
96) 18C10'CL: MOUSE KAPPA LIGHT CHAINS V
97) 38C13'CL: MOUSE KAPPA LIGHT CHAINS V
98) 38C'CL: MOUSE KAPPA LIGHT CHAINS V
99) PC613'CL: MOUSE KAPPA LIGHT CHAINS V
100) 38C13V'CL: MOUSE KAPPA LIGHT CHAINS V
101) MOPC173B'CL: MOUSE KAPPA LIGHT CHAINS V
102) T1'CL: MOUSE KAPPA LIGHT CHAINS V
103) K2A'CL: MOUSE KAPPA LIGHT CHAINS V

PRECURSOR OF: (cont'd)

104) RFT2'CL: MOUSE KAPPA LIGHT CHAINS V
105) Lym-1'CL: MOUSE KAPPA LIGHT CHAINS V
106) Vk33'CL: MOUSE KAPPA LIGHT CHAINS V
107) 10.2.8'CL: MOUSE KAPPA LIGHT CHAINS V
108) VT1/B'CL: MOUSE KAPPA LIGHT CHAINS V
109) L6'CL: MOUSE KAPPA LIGHT CHAINS V
110) 2-2G4'CL: MOUSE KAPPA LIGHT CHAINS V
111) 2-2C8'CL: MOUSE KAPPA LIGHT CHAINS V
112) B16.2K1'CL: MOUSE KAPPA LIGHT CHAINS V
113) UN34.11'CL: MOUSE KAPPA LIGHT CHAINS V
114) C.AKR'CL: MOUSE KAPPA LIGHT CHAINS V
115) SF/CamEi'CL: MOUSE KAPPA LIGHT CHAINS V
116) PERA/EI'CL: MOUSE KAPPA LIGHT CHAINS V
117) 4.2.6D12'CL: MOUSE KAPPA LIGHT CHAINS V
118) SK/CamRk'CL: MOUSE KAPPA LIGHT CHAINS V
119) C8.5Vk'CL: MOUSE KAPPA LIGHT CHAINS V
120) UN42.5'CL: MOUSE KAPPA LIGHT CHAINS V
121) BXW-16'CL: MOUSE KAPPA LIGHT CHAINS V
122) K3'CL: MOUSE KAPPA LIGHT CHAINS V
123) C.C58 M75'CL: MOUSE KAPPA LIGHT CHAINS V
124) C.C58 VkSer'CL: MOUSE KAPPA LIGHT CHAINS V
125) MRL-RF28(VK28)'CL: MOUSE KAPPA LIGHT CHAINS V
126) E225'CL: MOUSE KAPPA LIGHT CHAINS V
127) MPC11: MOUSE KAPPA LIGHT CHAINS V
128) A003=40/5G7'CL: MOUSE KAPPA LIGHT CHAINS V
129) CEA 66-E3'CL: MOUSE KAPPA LIGHT CHAINS V
130) VTNP'CL: MOUSE KAPPA LIGHT CHAINS V
131) CEM231.6.7'CL: MOUSE KAPPA LIGHT CHAINS V
132) BALB/cVkSer'CL: MOUSE KAPPA LIGHT CHAINS V
133) B6.2'CL: MOUSE KAPPA LIGHT CHAINS V
134) MOPC21: MOUSE KAPPA LIGHT CHAINS V
135) 17-1A'CL: MOUSE KAPPA LIGHT CHAINS V
136) E7'CL: MOUSE KAPPA LIGHT CHAINS V
137) MRL-RF24'CL: MOUSE KAPPA LIGHT CHAINS V
138) L7'CL: MOUSE KAPPA LIGHT CHAINS V
139) T2'CL: MOUSE KAPPA LIGHT CHAINS V
140) 87.92.6'CL: MOUSE KAPPA LIGHT CHAINS V
141) 45.21.1'CL: MOUSE KAPPA LIGHT CHAINS VI
142) 10C11'CL: MOUSE KAPPA LIGHT CHAINS VI
143) 18G8'CL: MOUSE KAPPA LIGHT CHAINS VI
144) 14.6b.1'CL: MOUSE KAPPA LIGHT CHAINS VI
145) 26.4.1'CL: MOUSE KAPPA LIGHT CHAINS VI
146) 5G11'CL: MOUSE KAPPA LIGHT CHAINS VI
147) 14B4'CL: MOUSE KAPPA LIGHT CHAINS VI
148) 58.2C.10.3'CL: MOUSE KAPPA LIGHT CHAINS VI
149) 6B10'CL: MOUSE KAPPA LIGHT CHAINS VI
150) 4F10'CL: MOUSE KAPPA LIGHT CHAINS VI
151) 6F6'CL: MOUSE KAPPA LIGHT CHAINS VI
152) 7C6'CL: MOUSE KAPPA LIGHT CHAINS VI
153) 8E3'CL: MOUSE KAPPA LIGHT CHAINS VI
154) H26'CL: MOUSE KAPPA LIGHT CHAINS VI
155) 3F2'CL: MOUSE KAPPA LIGHT CHAINS VI
156) 12G10'CL: MOUSE KAPPA LIGHT CHAINS VI
157) 10G10'CL: MOUSE KAPPA LIGHT CHAINS VI
158) 3E3'CL: MOUSE KAPPA LIGHT CHAINS VI
159) 13D4'CL: MOUSE KAPPA LIGHT CHAINS VI
160) 9G6'CL: MOUSE KAPPA LIGHT CHAINS VI
161) 3B6'CL: MOUSE KAPPA LIGHT CHAINS VI
162) 11G3'CL: MOUSE KAPPA LIGHT CHAINS VI
163) 564'CL: MOUSE KAPPA LIGHT CHAINS VI
164) 550'CL: MOUSE KAPPA LIGHT CHAINS VI
165) 563'CL: MOUSE KAPPA LIGHT CHAINS VI
166) 42.5D4.2'CL: MOUSE KAPPA LIGHT CHAINS VI
167) 37.1E5.2'CL: MOUSE KAPPA LIGHT CHAINS VI
168) 4C11'CL: MOUSE KAPPA LIGHT CHAINS VI
169) 567'CL: MOUSE KAPPA LIGHT CHAINS VI
170) 10.4'CL: MOUSE KAPPA LIGHT CHAINS VI
171) 3C5'CL: MOUSE KAPPA LIGHT CHAINS VI
172) 5G2'CL: MOUSE KAPPA LIGHT CHAINS VI
173) 70Z/3'CL: MOUSE KAPPA LIGHT CHAINS VI
174) 2H7'CL: MOUSE KAPPA LIGHT CHAINS VI
175) L6' 'CL: MOUSE KAPPA LIGHT CHAINS VI
176) 2C7'CL: MOUSE KAPPA LIGHT CHAINS VI
177) 38CV1'CL: MOUSE KAPPA LIGHT CHAINS VI
180) MPC11C: MOUSE KAPPA LIGHT CHAIN OF A VARIANT PROTEIN MADE BY CLONED MPC11 WITH THE VARIABLE REGION DELETED
186) 91A3'CL: MOUSE KAPPA LIGHT CHAIN
187) MOPC41'CL: MOUSE KAPPA LIGHT CHAIN
188) MOPC41A: MOUSE KAPPA LIGHT CHAIN OF MOPC41 (2 DIFFERENT PRECURSORS)
189) MOPC41B: MOUSE KAPPA LIGHT CHAIN OF MOPC41 (2 DIFFERENT PRECURSORS)
190) K2'CL: MOUSE KAPPA LIGHT CHAIN OF K2'CL
191) 40-140'CL: MOUSE KAPPA LIGHT CHAIN
192) MOPC21'CL: MOUSE KAPPA LIGHT CHAIN
193) 19.22.1'CL: MOUSE KAPPA LIGHT CHAIN

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1) S107A'CL: KWAN,S.P.,RUDIKOFF,S.,SEIDMAN,J.G.,LEDER,P. & SCHARFF,M.D. (1981) J.EXP.MED.,153,1366-1370.
2) 17/9'CL: SCHULZE-GAHMEN,U.,RINI,J.M.,AREVALO,J.,STURA,E.,KENTEN,J.H. & WILSON,I.A. (1988) J.BIOL.CHEM.,263,17100-17106.
3) 198.5C2'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
4) 198.3D3'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
5) 198.5C8'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
6) 198.4D9'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
7) 180.2G6'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
8) 180.6D10'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
9) 6A4'CL: MARGET,M.,ECKHARDT,A.,EHRET,W.,VON SPECHT,B.-U.,DUCHENE,M. & DOMDEY,H. (1988) GENE,74,335-345.
10) D23'CL: BACCALA,R.,QUANG,T.V.,GILBERT,M.,TERNYNCK,T. & AVRAMEAS,S. (1989) PROC.NATL.ACAD.SCI.USA,86,4624-4628.
11) 180.7C9'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
12) 180.5G4'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
13) TF5-139'CL: RILEY,S.C.,CONNORS,S.J.,KLINMAN,N.R. & OGATA,R.T. (1986) PROC.NAT.ACAD.SCI.USA,83,2589-2593. (CHECKED BY AUTHOR 08/19/87)
14) 180.2B2'CL: CLAFLIN,J.L.,BERRY,J.,FLAHERTY,D. & DUNNICK,W. (1987) J.IMMUNOL.,138,3060-3068.
15) F6-3'CL: CHENG,H.-L.,SOOD,A.K.,WARD,R.E.,KIEBER-EMMONS,T. & KOHLER,H. (1988) MOL.IMMUNOL.,25,33-40.
16) B13H4C8'CL: OKAMOTO,M. & HONJO,T. (1990) NUCL.ACIDS RES.,18,1895.

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17) MBr1'CL: ORLANDI,R.,GUSS
18) MRL-DNA10'CL: KOFLER,R., J.EXP.MED.,161, A.N. (1987) EUR. M.E.,NOONAN,D.J.
19) K5.1'CL: CORBET,S.,MILI
20) BC-1004'CL: CHEN,H.-T.,
21) B003=46/2D7'CL: CHEN,H.-
22) L XIX 27'CL: SCHIFF,C.,
23) 10-25'CL: BEDZYK,W.D.,HE
24) 5-14'CL: BEDZYK,W.D.,HEI
25) 9-40'CL: BEDZYK,W.D.,HEI
26) 12-40'CL: BEDZYK,W.D.,HE
27) 3-13'CL: BEDZYK,W.D.,HEI
28) IdB5.7'CL: PERFETTI,V.,
29) vk-1A'CL: NG,K.H.,LAVIG 638-648.
30) MOPC-460'CL: NG,K.H.,LA 638-648.
31) vk-1Cf'CL: NG,K.H.,LAVI 638-648.
32) vk-1B'CL: NG,K.H.,LAVIG 638-648.
33) 4-4-20'CL: BEDZYK,W.D.,
34) 3-24'CL: BEDZYK,W.D.,HE
35) MRL-4'CL: KOFLER,R., STR (1988) J.CLIN.I
36) 17C1'CL: NAHMIAS,C.,STR
37) 14C3'CL: NAHMIAS,C.,STR
38) K1A5'CL: CORBET,S.,MILI
39) vk-1C'CL: NG,K.H.,LAVIC 638-648.
40) v16-19'CL: REININGER,L. 10038-10042.
41) 6F8'CL: KAARTINEN,M.,PI
42) 4D4'CL: KAARTINEN,M.,PI
43) K18.1'CL: CORBET,S.,MI
44) RF93'CL: CHIEN,N.C.,PO
45) 17G5'CL: KAARTINEN,M.,
46) 36.5.7B'CL: WANG,D.,LI
47) W3129'CL: BORDEN,P. &
48) 42.4B.12.2'CL: AKOLKAR J.IMMUNOL.,138
49) 42.7B3.2'CL: WANG,D.,L
50) BXW-14'CL: KOFLER,R.,S (1988) J.CLIN.
51) PaVK24B'CL: JOUVIN-MAR
52) VKAPPA 24B'CL: JOHO,R.
53) VK-25-39'CL: LUTZ,C.T.
54) VK-25-47'CL: LUTZ,C.T.
55) PaVK24.2'CL: JOUVIN-MA
56) PaVK24.1'CL: JOUVIN-MA
57) PaVK24A'CL: JOUVIN-MAR
58) PaVK24C'CL: JOUVIN-MAR
59) MOPC167'CL: JOHO,R.,WE
60) VKAPPA167'CL: SELSING, WEISSMAN,I.L. PROC.NAT.ACAD.
61) VKAPPA 24A'CL: JOHO,R.
62) MPC11'CL: SEIDMAN,J.G. MORRISON,S.L.
63) MOPC321: SCHECHTER,I., BIOCHEMISTRY,1
64) 2.7.1G.10'CL: KOGA,H.,
65) Vk-21G'CL: ALANEN,A. &
66) Vk-21A'CL: ALANEN,A. &
67) 05'CL: O'KEEFE,T.L.,BA
68) 11'CL: O'KEEFE,T.L.,BA
69) 12'CL: O'KEEFE,T.L.,BA
70) 4.3.6F8'CL: WANG,D.,LI
71) MOPC63: BURSTEIN,Y. & 2392-2400. (C
72) 13'CL: O'KEEFE,T.L.,BA
73) 30'CL: O'KEEFE,T.L.,BA
74) 2B2'CL: KAARTINEN,M.
75) 12C4'CL: KAARTINEN,M.
76) MRL-Histone7'CL: KOFLI EUR.J.IMMUNOL.
77) 7B6'CL: KAARTINEN,M.
78) MRL-22'CL: KOFLER,R., (1988) J.CLIN
79) VABE8'CL: SELSING,E.
80) 18-2-3'CL: DOMBRINK-KI 4513-4522.
81) 5D3'CL: KAARTINEN,M.,
82) 6G11'CL: KAARTINEN,M.
83) 37A4'CL: NAHMIAS,C.,S
84) T3C'CL: ROTH,M.S.,WEI J.IMMUNOL.,14
85) L8'CL: HOECHTL,J.,MUE
86) S107B'CL: KWAN,S.P.,M
87) T2E(1)'CL: ROTH,M.S., J.IMMUNOL.,14
88) 38CV3'CL: CARROLL,W.L
89) 38CV4'CL: CARROLL,W.L
90) V-K10 ARS-A'CL: SANZ,
91) AC-1001'CL: CHEN,H.-T
92) 7F11'CL: KAARTINEN,M.
93) 2H1'CL: LI,Y.-W.,LAWR
94) H12'CL: KAARTINEN,M.,
95) 5-27'CL: BEDZYK,W.D.,
96) 18C10'CL: KAARTINEN,M MAKELA,O. (19
97) 38C13'CL: CAMPBELL,M.
98) 38C'CL: CARROLL,W.L.,
99) PC613'CL: FEDDERSEN,P
100) 38C13V'CL: ROTH,M.S., J.IMMUNOL.,14
101) MOPC173B'CL: MAX,E.E.
102) T1'CL: ALTENBURGER,W.
103) K2A'CL: NISHIOKA,Y.

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17) **MBr1'CL**: ORLANDI,R.,GUSSOW,D.H.,JONES,P.T. & WINTER,G. (1989) PROC.NATL.ACAD.SCI.USA,86,3833-3837.

18) **MRL-DNA10'CL**: KOFLER,R.,NOONAN,D.J.,LEVY,D.E.,WILSON,M.C.,MOLLER,N.P.H.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1985) J.EXP.MED.,161,805-815; KOFLER,R.,NOONAN,D.J.,STROHAL,R.,BALDERAS,R.S.,MOLLER,N.P.H.,DIXON,F.J. & THEOFILOPOULOS, A.N. (1987) EUR.J.IMMUNOL.,17,91-95. (CHECKED BY AUTHOR 06/23/87); KOFLER,R.,STROHAL,R.,BALDERAS,R.S.,JOHNSON, M.E.,NOONAN,D.J.,DUCHOSAL,M.A.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1988) J.CLIN.INVEST.,82,852-860.

19) **K5.1'CL**: CORBET,S.,MILILI,M.,FOUGEREAU,M. & SCHIFF,C. (1987) J.IMMUNOL.,138,932-939.

20) **BC-1004'CL**: CHEN,H.-T.,KABAT,E.A.,LUNDBLAD,A. & RATCLIFFE,R.M. (1987) J.BIOL.CHEM.,262,13579-13583.

21) **B003=46/2D7'CL**: CHEN,H.-T.,KABAT,E.A.,LUNDBLAD,A. & RATCLIFFE,R.M. (1987) J.BIOL.CHEM.,262,13579-13583.

22) **L XIX 27'CL**: SCHIFF,C.,CORBET,S.,MILILI,M. & FOUGEREAU,M. (1983) EMBO J.,2,1771-1776.

23) **10-25'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

24) **5-14'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

25) **9-40'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

26) **12-40'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

27) **3-13'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

28) **IdB5.7'CL**: PERFETTI,V.,BORDEN,P.,TAO,M.-H.,MORRISON,S.L. & KABAT,E.A. (1991) MOL.IMMUNOL.,28,505-515.

29) **vk-1A'CL**: NG,K.H.,LAVIGUEUR,A.,RICARD,L.,BOIVRETTE,M.,MACLEAN,S.,CLOUTIER,D. & GIBSON,D.M. (1989) J.IMMUNOL.,143, 638-648.

30) **MOPC-460'CL**: NG,K.H.,LAVIGUEUR,A.,RICARD,L.,BOIVRETTE,M.,MACLEAN,S.,CLOUTIER,D. & GIBSON,D.M. (1989) J.IMMUNOL.,143, 638-648.

31) **vk-1Cf'CL**: NG,K.H.,LAVIGUEUR,A.,RICARD,L.,BOIVRETTE,M.,MACLEAN,S.,CLOUTIER,D. & GIBSON,D.M. (1989) J.IMMUNOL.,143, 638-648.

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33) **4-4-20'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

34) **3-24'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

35) **MRL-4'CL**: KOFLER,R.,STROHAL,R.,BALDERAS,R.S.,JOHNSON,M.E.,NOONAN,D.J.,DUCHOSAL,M.A.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1988) J.CLIN.INVEST.,82,852-860.

36) **17C1'CL**: NAHMIAS,C.,STROSBERG,A.D. & EMORINE,L.J. (1988) J.IMMUNOL.,140,1304-1311.

37) **14C3'CL**: NAHMIAS,C.,STROSBERG,A.D. & EMORINE,L.J. (1988) J.IMMUNOL.,140,1304-1311.

38) **K1A5'CL**: CORBET,S.,MILILI,M.,FOUGEREAU,M. & SCHIFF,C. (1987) J.IMMUNOL.,138,932-939.

39) **vk-1C'CL**: NG,K.H.,LAVIGUEUR,A.,RICARD,L.,BOIVRETTE,M.,MACLEAN,S.,CLOUTIER,D. & GIBSON,D.M. (1989) J.IMMUNOL.,143, 638-648.

40) **v16-19'CL**: REININGER,L.,BERNEY,T.,SHIBATA,T.,SPERTINI,F.,MERINO,R. & IZUI,S. (1990) PROC.NATL.ACAD.SCI.USA,87, 10038-10042.

41) **6F8'CL**: KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

42) **4D4'CL**: KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

43) **K18.1'CL**: CORBET,S.,MILILI,M.,FOUGEREAU,M. & SCHIFF,C. (1987) J.IMMUNOL.,138,932-939.

44) **RF93'CL**: CHIEN,N.C.,POLLOCK,R.R.,DESAYMARD,C. & SCHARFF,M.D. (1988) J.EXP.MED.,167,954-973.

45) **17G5'CL**: KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

46) **36.5.7B'CL**: WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

47) **W3129'CL**: BORDEN,P. & KABAT,E.A. (1987) PROC.NATL.ACAD.SCI.USA,84,2440-2443.

48) **42.4B.12.2'CL**: AKOLKAR,P.N.,SIKDER,S.K.,BHATTACHARYA,S.B.,LIAO,J.,GRUEZO,F.,MORRISON,S.L. & KABAT,E.A. (1987) J.IMMUNOL.,138,4472-4479. ERRATA CORRECTED 139,3911.

49) **42.7B3.2'CL**: WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

50) **BXN-14'CL**: KOFLER,R.,STROHAL,R.,BALDERAS,R.S.,JOHNSON,M.E.,NOONAN,D.J.,DUCHOSAL,M.A.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1988) J.CLIN.INVEST.,82,852-860.

51) **PaVK24B'CL**: JOUVIN-MARCHE,E. & RUDIKOFF,S. (1986) IMMUNOGENET.,24,191-201.

52) **VKAPPA 24B'CL**: JOHO,R.,GERSHENFELD,H. & WEISSMAN,I.L. (1984) EMBO J.,3,185-191. (CHECKED BY AUTHOR 11/19/85)

53) **VK-25-39'CL**: LUTZ,C.T. & DAVIE,J.M. (1988) J.IMMUNOL.,140,641-645.

54) **VK-25-47'CL**: LUTZ,C.T. & DAVIE,J.M. (1988) J.IMMUNOL.,140,641-645.

55) **PaVK24.2'CL**: JOUVIN-MARCHE,E. & RUDIKOFF,S. (1986) IMMUNOGENET.,24,191-201.

56) **PaVK24.1'CL**: JOUVIN-MARCHE,E. & RUDIKOFF,S. (1986) IMMUNOGENET.,24,191-201.

57) **PaVK24A'CL**: JOUVIN-MARCHE,E. & RUDIKOFF,S. (1986) IMMUNOGENET.,24,191-201.

58) **PaVK24C'CL**: JOUVIN-MARCHE,E. & RUDIKOFF,S. (1986) IMMUNOGENET.,24,191-201.

59) **MOPC167'CL**: JOHO,R.,WEISSMAN,I.L.,EARLY,P.,COLE,J. & HOOD,L. (1980) PROC.NAT.ACAD.SCI.USA,77,1106-1110.

60) **VKAPPA167'CL**: SELSING,E. & STORB,U. (1981) CELL,25,47-58. (CHECKED BY AUTHOR 09/11/81); GERSHENFELD,H.K.,TSUKAMOTO,A., WEISSMAN,I.L. & JOHO,R. (1981) PROC.NAT.ACAD.SCI.USA,78,7674-7678; GEARHART,P.J. & BOGENHAGEN,D.F. (1983) PROC.NAT.ACAD.SCI.USA,80,3439-3443. (CHECKED BY AUTHOR 07/22/83)

61) **VKAPPA 24A'CL**: JOHO,R.,GERSHENFELD,H. & WEISSMAN,I.L. (1984) EMBO J.,3,185-191. (CHECKED BY AUTHOR 11/19/85)

62) **MPC11'CL**: SEIDMAN,J.G. & LEDER,P. (1980) NATURE,286,779-783. (CHECKED BY AUTHOR 11/06/80); SIKDER,S.K.,KABAT,E.A. & MORRISON,S.L. (1985) PROC.NAT.ACAD.SCI.USA,82,4045-4049.

63) **MOPC321**: SCHECHTER,I.,MCKEAN,D.,GUYER,R. & TERRY,W. (1975) SCIENCE,188,160-162; BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17,2392-2400. (CHECKED BY AUTHOR 08/29/79)

64) **2.7.1G.10'CL**: KOGA,H.,KANDA,H.,NAKASHIMA,M.,WATANABE,Y.,ENDO,K. & WATANABE,T. (1990) HYBRIDOMA,9,43-56.

65) **Vk-21G'CL**: ALANEN,A. & WEISS,S. (1989) EUR.J.IMMUNOL.,19,1961-1963.

66) **Vk-21A'CL**: ALANEN,A. & WEISS,S. (1989) EUR.J.IMMUNOL.,19,1961-1963.

67) **05'CL**: O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

68) **11'CL**: O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

69) **12'CL**: O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

70) **4.3.6F8'CL**: WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

71) **MOPC63**: BURSTEIN,Y. & SCHECHTER,I. (1976) BIOCHEM.J.,157,145-151; BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17, 2392-2400. (CHECKED BY AUTHOR 08/29/79)

72) **13'CL**: O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

73) **30'CL**: O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

74) **2B2'CL**: KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

75) **12C4'CL**: KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

76) **MRL-Histone7'CL**: KOFLER,R.,NOONAN,D.J.,STROHAL,R.,BALDERAS,R.S.,MOLLER,N.P.H.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1987) EUR.J.IMMUNOL.,17,91-95. (CHECKED BY AUTHOR 06/23/87)

77) **7B6'CL**: KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

78) **MRL-22'CL**: KOFLER,R.,STROHAL,R.,BALDERAS,R.S.,JOHNSON,M.E.,NOONAN,D.J.,DUCHOSAL,M.A.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1988) J.CLIN.INVEST.,82,852-860.

79) **VABE8'CL**: SELSING,E. (1984) NUCL.ACIDS RES.,12,4229-4245.

80) **18-2-3'CL**: DOMBRINK-KURTZMAN,M.A.,JOHNSON,L.S.,RIORDAN,G.S.,BEDZYK,W.D. & VOSS,E.W.,JR. (1989) J.BIOL.CHEM.,264, 4513-4522.

81) **5D3'CL**: KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

82) **6G11'CL**: KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

83) **37A4'CL**: NAHMIAS,C.,STROSBERG,A.D. & EMORINE,L.J. (1988) J.IMMUNOL.,140,1304-1311.

84) **T3C'CL**: ROTH,M.S.,WEINER,G.J.,ALLEN,E.A.,TERRY,V.H.,HARNDEN,C.E.,BOEHNKE,M.,KAMINSKI,M.S. & GINSBURG,D. (1990) J.IMMUNOL.,145,768-777.

85) **L8'CL**: HOECHTL,J.,MUELLER,C.R./& ZACHAU,H.G. (1982) PROC.NAT.ACAD.SCI.USA,79,1383-1387. (CHECKED BY AUTHOR 12/21/82)

86) **S107B'CL**: KWAN,S.P.,MAX,E.E.,SEIDMAN,J.G.,LEDER,P. & SCHARFF,M.D. (1981) CELL,26,57-66.

87) **T2E(1)'CL**: ROTH,M.S.,WEINER,G.J.,ALLEN,E.A.,TERRY,V.H.,HARNDEN,C.E.,BOEHNKE,M.,KAMINSKI,M.S. & GINSBURG,D. (1990) J.IMMUNOL.,145,768-777.

88) **38CV3'CL**: CARROLL,W.L.,STARNES,C.O.,LEVY,R. & LEVY,S. (1988) J.EXP.MED.168,1607-1620.

89) **38CV4'CL**: CARROLL,W.L.,STARNES,C.O.,LEVY,R. & LEVY,S. (1988) J.EXP.MED.168,1607-1620.

90) **V-K10 ARS-A'CL**: SANZ,I. & CAPRA,J.D. (1987) PROC.NATL.ACAD.SCI.USA,84,1085-1089.

91) **AC-1001'CL**: CHEN,H.-T.,KABAT,E.A.,LUNDBLAD,A. & RATCLIFFE,R.M. (1987) J.BIOL.CHEM.,262,13579-13583.

92) **7F11'CL**: KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

93) **2H1'CL**: LI,Y.-W.,LAWRIE,D.K.,THAMMANA,P.,MOORE,G.P. & SHEARMAN,C.W. (1990) MOL.,IMMUNOL.,27,303-311.

94) **H12'CL**: KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

95) **5-27'CL**: BEDZYK,W.D.,HERRON,J.N.,EDMUNDSON,A.B. & VOSS,E.W.,JR. (1990) J.BIOL.CHEM.,265,133-138.

96) **18C10'CL**: KAARTINEN,M.,ROCCA-SERRA,J. & MAKELA,O. (1988) MOL.IMMUNOL.,25,859-865; KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

97) **38C13'CL**: CAMPBELL,M.J.,CARROLL,W.,KON,S.,THIELEMANS,K.,ROTHBARD,J.B.,LEVY,S. & LEVY,R. (1987) J.IMMUNOL.,139,2825-2833.

98) **38C'CL**: CARROLL,W.L.,STARNES,C.O.,LEVY,R. & LEVY,S. (1988) J.EXP.MED.168,1607-1620.

99) **PC613'CL**: FEDDERSEN,R. & VAN NESS,B. (1989) NUCL.ACIDS RES.,17,9797-9809.

100) **38C13V'CL**: ROTH,M.S.,WEINER,G.J.,ALLEN,E.A.,TERRY,V.H.,HARNDEN,C.E.,BOEHNKE,M.,KAMINSKI,M.S. & GINSBURG,D. (1990) J.IMMUNOL.,145,768-777.

101) **MOPC173B'CL**: MAX,E.E.,SEIDMAN,J.G.,MILLER,H. & LEDER,P. (1980) CELL,21,793-799. (CHECKED BY AUTHOR 11/06/80)

102) **T1'CL**: ALTENBURGER,W.,STEINMETZ,M. & ZACHAU,H.G. (1980) NATURE,287,603-607. (CHECKED BY AUTHOR 12/21/82)

103) **K2A'CL**: NISHIOKA,Y. & LEDER,P. (1980) J.BIOL.CHEM.,255,3691-3694. (CHECKED BY AUTHOR 11/06/80)

REFERENCE: SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS (cont'd)

104) **RFT2'CL:** HEINRICH,G.,GRAM,H.,KOCHER,H.P.,SCHREIER,M.H.,RYFFEL,B.,AKBAR,A.,AMLOT,P.L. & JANOSSY,G. (1989) J.IMMUNOL.,143, 3589-3597.

105) **Lym-1'CL:** WELLMAN,A.A. & MEARES,C.F. (1990) NUCL.ACIDS RES.,18,5281.

106) **Vk33'CL:** D'HOOSTELAERE,L.A. & KLINMAN,D. (1990) J.IMMUNOL.,145,2706-2712.

107) **10.2.8'CL:** WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

108) **VT1/B'CL:** GORSKI,J.,ROLLINI,P. & MACH,B. (1983) SCIENCE,220,1179-1181.

109) **L6'CL:** PECH,M.,HOCHTL,J.,SCHNELL,H. & ZACHAU,H.G. (1981) NATURE,291,668-670. (CHECKED BY AUTHOR 12/02/81)

110) **2-2G4'CL:** HARDY,R.R.,CARMACK,C.E.,SHINTON,S.A.,RIBLET,R.J. & HAYAKAWA,K. (1989) J.IMMUNOL.,142,3643-3651.

111) **2-2C8'CL:** HARDY,R.R.,CARMACK,C.E.,SHINTON,S.A.,RIBLET,R.J. & HAYAKAWA,K. (1989) J.IMMUNOL.,142,3643-3651.

112) **B16.2K1'CL:** FORSTER,I.,GU,H. & RAJEWSKY,K. (1988) EMBO J.,7,3693-3703.

113) **UN34.11'CL:** KASTURA,K.N.,MAHER,R.,BONA,C.A.,SCOTT,V.E. & SIDMAN,C.L. (1990) J.IMMUNOL.,145,2304-2311.

114) **C.AKR'CL:** PONATH,P.D.,HILLIS,D.M. & GOTTLIEB,P.D. (1989) IMMUNOGENET.,29,249-257.

115) **SF/CamEi'CL:** PONATH,P.D.,HILLIS,D.M. & GOTTLIEB,P.D. (1989) IMMUNOGENET.,29,249-257.

116) **PERA/EI'CL:** PONATH,P.D.,HILLIS,D.M. & GOTTLIEB,P.D. (1989) IMMUNOGENET.,29,249-257.

117) **4.2.6D12'CL:** WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

118) **SK/CamRk'CL:** PONATH,P.D.,HILLIS,D.M. & GOTTLIEB,P.D. (1989) IMMUNOGENET.,29,249-257.

119) **C8.5Vk'CL:** SHEFNER,R.,MAYER,R.,KAUSHIK,A.,D'EUSTACHIO,P.,BONA,C. & DIAMOND,B. (1990) J.IMMUNOL.,145,1609-1614.

120) **UN42.5'CL:** KASTURA,K.N.,MAHER,R.,BONA,C.A.,SCOTT,V.E. & SIDMAN,C.L. (1990) J.IMMUNOL.,145,2304-2311.

121) **BXN-16'CL:** KOFLER,R.,STROHAL,R.,BALDERAS,R.S.,JOHNSON,M.E.,NOONAN,D.J.,DUCHOSAL,M.A.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1988) J.CLIN.INVEST.,82,852-860.

122) **K3'CL:** SEIDMAN,J.G.,LEDER,A.,EDGELL,M.H.,POLSKY,F.,TILGHMAN,S.M.,TIEMEIER,D.C. & LEDER,P. (1978) PROC.NAT.ACAD.SCI.USA, 75,3881-3885.

123) **C.C58 M75'CL:** GOLDRICK,M.M.,BOYD,R.T.,PONATH,P.D.,LOU,S.-Y. & GOTTLIEB,P.D. (1985) J.EXP.MED.,162,713-728.

124) **C.C58 VkSer'CL:** BOYD,R.T.,GOLDRICK,M.M. & GOTTLIEB,P.D. (1986) PROC.NATL.ACAD.SCI.USA,83,9134-9138.

125) **MRL-RF28(Vk28)'CL:** KOFLER,R.,DUCHOSAL,M.A. & DIXON,F.J. (1989) IMMUNOGENET.,29,65-74.

126) **E225'CL:** SOUCHON,H.,DOYEN.,RIOTTOT,M.-M.,ROUGEON,F. & POLJAK,R.J. (1990) MOL.IMMUNOL.,27,429-433.

127) **MPC11:** ROSE,S.M.,KUEHL,W.M. & SMITH,G.P. (1977) CELL,12,453-462; KELLEY,D.E.,COLECLOUGH,C. & PERRY,R.P. (1982) CELL,29, 681-689.

128) **A003=40/5G7'CL:** CHEN,H.-T.,KABAT,E.A.,LUNDBLAD,A. & RATCLIFFE,R.M. (1987) J.BIOL.CHEM.,262,13579-13583.

129) **CEA 66-E3'CL:** CABILLY,S.,RIGGS,A.D.,PANDE,H.,SHIVELY,J.E.,HOLMES,W.E.,REY,M.,PERRY,L.J.,WETZEL,R. & HEYNEKER,H.L. (1984) PROC.NAT.ACAD.SCI.USA,81,3273-3277. (CHECKED BY AUTHOR 06/12/84)

130) **VTNP'CL:** HAWLEY,R.G.,SHULMAN,M.J.,MURIALDO,H.,GIBSON,D.M. & HOZUMI,N. (1982) PROC.NAT.ACAD.SCI.USA,79,7425-7429.

131) **CEM231.6.7'CL:** BEIDLER,C.B.,LUDWIG,J.R.,CARDENAS,J.,PHELPS,J.,PAPWORTH,C.G.,MELCHER,E.,SIERZEGA,M.,MYERS,L.J.,UNGER, B.W.,FISHER,M.,DAVID,G.S. & JOHNSON,M.J. (1988) J.IMMUNOL.,141,4053-4060.

132) **BALB/cVkSer'CL:** BOYD,R.T.,GOLDRICK,M.M. & GOTTLIEB,P.D. (1986) PROC.NATL.ACAD.SCI.USA,83,9134-9138.

133) **B6.2'CL:** SAHAGAN,B.G.,DORAI,H.,SALTZGABER-MULLER,J.,TONEGUZZO,F.,GUINDON,C.A.,LILLY,S.P.,MCDONALD,K.W.,MORRISSEY,D.V., STONE,B.A.,DAVIS,G.L.,MCINTOSH,P.K. & MOORE,G.P. (1986) J.IMMUNOL.,137,1066-1074.

134) **MOPC21:** ROSE,S.M.,KUEHL,W.M. & SMITH,G.P. (1977) CELL,12,453-462; HAMLYN,P.H.,GAIT,M.J. & MILSTEIN,C. (1981) NUC.ACIDS RES.,9,4485-4494.

135) **17-1A'CL:** SUN,L.K.,CURTIS,P.,RAKOWICZ-SZULCZYNSKA,E.,GHRAYEB,J.,CHANG,N.,MORRISON,S.L. & KOPROWKSI,H. (1987) PROC.NATL.ACAD.SCI.USA,84,214-218.

136) **E7'CL:** BACCALA,R.,QUANG,T.V.,GILBERT,M.,TERNYNCK,T. & AVRAMEAS,S. (1989) PROC.NATL.ACAD.SCI.USA,86,4624-4628.

137) **MRL-RF24'CL:** KOFLER,R.,NOONAN,D.J.,STROHAL,R.,BALDERAS,R.S.,MOLLER,N.P.H.,DIXON,F.J. & THEOFILOPOULOS,A.N. (1987) EUR.J.IMMUNOL.,17,91-95. (CHECKED BY AUTHOR 06/23/87)

138) **L7'CL:** PECH,M.,HOCHTL,J.,SCHNELL,H. & ZACHAU,H.G. (1981) NATURE,291,668-670. (CHECKED BY AUTHOR 12/02/81)

139) **T2'CL:** ALTENBURGER,W.,STEINMETZ,M. & ZACHAU,H.G. (1980) NATURE,287,603-607. (CHECKED BY AUTHOR 12/21/82)

140) **87.92.6'CL:** BRUCK,C.,CO,M.S.,SLAOUI,M.,GAULTON,G.N.,SMITH,T.,FIELDS,B.N.,MULLINS,J.I. & GREENE,M.I. (1986) PROC.NATL.ACAD.SCI.USA,83,6578-6582.

141) **45.21.1'CL:** SIKDER,S.K.,AKOLKAR,P.N.,KALADAS,P.M.,MORRISON,S.L. & KABAT,E.A. (1985) J.IMMUNOL.,135,4215-4221. (CHECKED BY AUTHOR 11/25/85 WHO CORRECTED POSITION -8 AS SHOWN)

142) **10C11'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

143) **18G8'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

144) **14.6b.1'CL:** SIKDER,S.K.,AKOLKAR,P.N.,KALADAS,P.M.,MORRISON,S.L. & KABAT,E.A. (1985) J.IMMUNOL.,135,4215-4221. (CHECKED BY AUTHOR 11/25/85 WHO CORRECTED POSITION -8 AS SHOWN)

145) **26.4.1'CL:** SIKDER,S.K.,AKOLKAR,P.N.,KALADAS,P.M.,MORRISON,S.L. & KABAT,E.A. (1985) J.IMMUNOL.,135,4215-4221. (CHECKED BY AUTHOR 11/25/85 WHO CORRECTED POSITION -8 AS SHOWN)

146) **5G11'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

147) **14B4'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

148) **58.2C.10.3'CL:** AKOLKAR,P.N.,SIKDER,S.K.,BHATTACHARYA,S.B.,LIAO,J.,GRUEZO,F.,MORRISON,S.L. & KABAT,E.A. (1987) J.IMMUNOL.,138,4472-4479. ERRATA CORRECTED 139,3911.

149) **6B10'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

150) **4F10'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

151) **6F6'CL:** KAARTINEN,M.,ROCCA-SERRA,J. & MAKELA,O. (1988) MOL.IMMUNOL.,25,859-865.

152) **7C6'CL:** KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

153) **8E3'CL:** KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

154) **H26'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

155) **3F2'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

156) **12G10'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

157) **10G10'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

158) **3E3'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

159) **13D4'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

160) **9G6'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

161) **3B6'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

162) **11G3'CL:** KAARTINEN,M.,SOLIN,M.-L. & MAKELA,O. (1989) EMBO J.,8,1743-1748.

163) **564'CL:** O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

164) **550'CL:** O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

165) **563'CL:** O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

166) **42.5D4.2'CL:** WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

167) **37.1E5.2'CL:** WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

168) **4C11'CL:** CHENG,H.-L.,SOOD,A.K.,WARD,R.E.,KIEBER-EMMONS,T. & KOHLER,H. (1988) MOL.IMMUNOL.,25,33-40.

169) **567'CL:** O'KEEFE,T.L.,BANDYOPADHYAY,S.,DATTA,S.K. & IMANISHI-KARI,T. (1990) J.IMMUNOL.,144,4275-4283.

170) **10.4'CL:** ROTH,M.S.,WEINER,G.J.,ALLEN,E.A.,TERRY,V.H.,HARNDEN,C.E.,BOEHNKE,M.,KAMINSKI,M.S. & GINSBURG,D. (1990) J.IMMUNOL.,145,768-777.

171) **3C5'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

172) **5G2'CL:** KAARTINEN,M.,PELKONEN,E.,EVEN,J. & MAKELA,O. (1988) EUR.J.IMMUNOL.,18,1095-1100.

173) **70z/3'CL:** PARSLOW,T.G.,BLAIR,D.L.,MURPHY,W.J. & GRANNER,D.K. (1984) PROC.NAT.ACAD.SCI.USA,81,2650-2654. (CHECKED BY AUTHOR 03/14/85)

174) **2H7'CL:** LIU,A.Y.,ROBINSON,R.R.,MURRAY,E.D.,JR.,LEDBETTER,J.A.,HELLSTROM,I. & HELLSTROM,K.E. (1987) J.IMMUNOL.,139, 3521-3526.

175) **L6' 'CL:** LIU,A.Y.,ROBINSON,R.R.,HELLSTROM,K.E.,MURRAY,E.D.,JR.,CHANG,C.P. & HELLSTROM,I. (1987) PROC.NATL.ACAD.SCI.USA, 84,3439-3443.

176) **2C7'CL:** KAARTINEN,M. & MAKELA,O. (1987) J.IMMUNOL.,138,1613-1617.

177) **38CV1'CL:** CARROLL,W.L.,STARNES,C.O.,LEVY,R. & LEVY,S. (1988) J.EXP.MED.168,1607-1620.

178) **TEPC(CAL20)105'CL:** MOYNET,D.,MACLEAN,S.J.,NG,K.H.,ANCTIL,D. & GIBSON,D.M. (1985) J.IMMUNOL.,134,3455-3460; MOYNET,D., MACLEAN,S.J.,NG,K.H.,ANCTIL,D. & GIBSON,D.M. (1985) J.IMMUNOL.,135,727-732.

179) **26-10 Vk'CL:** NEAR,R.I.,NG,S.C.,MUDGETT-HUNTER,M.,HUDSON,N.W.,MARGOLIES,M.N.,SEIDMAN,J.G.,HABER,E. & JACOBSON,M.A. (1990) MOL.IMMUNOL.,27,901-909.

180) **MPC11C:** ROSE,S.M.,KUEHL,W.M. & SMITH,G.P. (1977) CELL,12,453-462; BURSTEIN,Y.,ZEMELL,R.,KANTOR,F. & SCHECHTER,I. (1977) PROC.NAT.ACAD.SCI.USA,74,3157-3161; BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17,2392-2400. (CHECKED BY AUTHOR 12/15/82)

181) **V-21C9.5KB'CL:** HEINRICH,G.,TRAUNECKER,A. & TONEGAWA,S. (1984) J.EXP.MED.,159,417-435.

182) **V-21E1.5KB'CL:** HEINRICH,G.,TRAUNECKER,A. & TONEGAWA,S. (1984) J.EXP.MED.,159,417-435.

183) **V-21E1.6KB'CL:** HEINRICH,G.,TRAUNECKER,A. & TONEGAWA,S. (1984) J.EXP.MED.,159,417-435.

184) **V-21B18KB'CL:** HEINRICH,G.,TRAUNECKER,A. & TONEGAWA,S. (1984) J.EXP.MED.,159,417-435.

185) **V-21B16KB'CL:** HEINRICH,G.,TRAUNECKER,A. & TONEGAWA,S. (1984) J.EXP.MED.,159,417-435.

186) **91A3'CL:** SANZ,I. & CAPRA,J.D. (1987) PROC.NATL.ACAD.SCI.USA,84,1085-1089.

187) **MOPC41'CL:** SEIDMAN,J.G.,MAX,E.E. & LEDER,P. (1979) NATURE,280,370-375.

188) **MOPC41A:** SCHECHTER,I. & BURSTEIN,Y. (1976) BIOCHEM.BIOPHYS.RES.COMMUN.,68,489-496; BURSTEIN,Y. & SCHECHTER,I. (1977) PROC.NAT.ACAD.SCI.USA,74,716-720; BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17,2392-2400. (CHECKED BY AUTHOR 08/29/79)

189) **MOPC41B:** SCHECHTER,I. & BURSTEIN,Y. (1976) BIOCHEM.BIOPHYS.RES.COMMUN.,68,489-496; BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17,2392-2400. (CHECKED BY AUTHOR 08/29/79)

REFERENCE: SIGNAL PEPTI

190) **K2'CL:** NISHIOKA,Y. & L

191) **40-140'CL:** NEAR,R.I. &

192) **MOPC21'CL:** FONG,K.,LEI C. (1981) NUC.

193) **19.22.1'CL:** AKOLKAR,P.I 138,4472-4479.

194) **2154'CL:** KELLEY,D.E.,W & CELL. BIOL.,

195) **I(K0)'CL:** VAN NESS,B.G

196) **5563(C3B)L:** SINGER,H.H AUTHOR 11/06/8

197) **42.9E5.2'CL:** WANG,D.,L

198) **4.14.3'CL:** WANG,D.,LIA

GENERAL NOTES: SIGNAL P

& THE NUCLEOTIDE SEQUENCE THE SPLICING OUT OF THESE I HOWEVER, IF THE SPLICING RE OCCURRING WITHIN THE CODON

CLONE:	SOU
HK100'CL	HUM
HK101'CL	HUM
HK102'CL	HUM
MOPC173B'CL	MOU
S107B'CL	MOU
L8'CL	MOU
K2'CL	MOU
MPC11'CL	MOU
VKAPPA167'CL	MOU
L6'CL	MOU
L7'CL	MOU
T1'CL	MOU
T2'CL	MOU
VT1/B'CL	MOU
VTNP'CL	MOU

SPECIFIC NOTES: SIGNAL

13) **TF5-139'CL:** FROM BALB,

17) **MBr1'CL:** IT IS A CHIMI IGG1-KAPPA).

19) **K5.1'CL:** ISOLATED BY

38) **K1A5'CL:** ISOLATED BY

43) **K18.1'CL:** ISOLATED BY

44) **RP93'CL:** IT WAS ISOLA

60) **VKAPPA167'CL:** THE V

64) **2.7.1G.10'CL:** A MOUSE SAME AFFINITY

67) **05'CL:** PATHOGENIC AUT

68) **11'CL:** PATHOGENIC AUT

69) **12'CL:** PATHOGENIC AUT

72) **13'CL:** PATHOGENIC AUT

73) **30'CL:** PATHOGENIC AUT

74) **2B2'CL:** THE SEQUENCE AFTER IMMUNIZ

75) **12C4'CL:** THE SEQUENCE AFTER IMMUNIZ

77) **7B6'CL:** THE SEQUENCE AFTER IMMUNIZ

82) **6G11'CL:** THE SEQUENCE AFTER IMMUNIZ

84) **T3C'CL:** ANTI-IDIOTYPE TO RE-REARRAN

85) **L8'CL:** THE SPLICING

86) **S107B'CL:** THE SPLICI

87) **T2z(1)'CL:** ANTI-IDIOT DUE TO RE-REA

90) **V-K10 ARS-A'CL:** TERMI

93) **2H1'CL:** A CHIMERIC AN

100) **38C13V'CL:** ANTI-IDIOT DUE TO RE-REA

104) **RFT2'CL:** THE VARIABLE KAPPA AND IGG CHT2; SDZ 214

126) **E225'CL:** IT REACTS WI

127) **MPC11:** THE TRANSLATED

129) **CEA 66-E3'CL:** THIS AN

131) **CEM231.6.7'CL:** IT IS

133) **B6.2'CL:** THE V-REGION

138) **L7'CL:** THE AUTHORS S NO RESIDUES A

140) **87.92.6'CL:** MONOCLONA THE MAMMALIAN REOVIRUS TYPE

142) **10C11'CL:** THE SEQUENC AFTER IMMUNIZ

143) **18G8'CL:** THE SEQUENCE AFTER IMMUNIZ

146) **5G11'CL:** THE SEQUENCE AFTER IMMUNIZ

147) **14B4'CL:** THE SEQUENCE AFTER IMMUNIZ

I49) **6B10'CL:** THE SEQUENCE AFTER IMMUNIZ

150) **4F10'CL:** THE SEQUENCE AFTER IMMUNIZ

154) **H26'CL:** ISOLATED 7 DA

155) **3F2'CL:** ISOLATED 7 DA

REFERENCE: SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS (cont'd)

190) **K2'CL**: NISHIOKA,Y. & LEDER,P. (1980) J.BIOL.CHEM.,255,3691-3694. (CHECKED BY AUTHOR 11/06/80)

191) **40-140'CL**: NEAR,R.I. & HABER,E. (1989) MOL.IMMUNOL.,26,371-382.

192) **MOPC21'CL**: FONG,K.,LEI,A. & SALSER,W. (1979) BIOCHEM.BIOPHYS.RES.COMMUN., 90,832-841; HAMLYN,P.H.,GAIT,M.J. & MILSTEIN, C. (1981) NUC.ACIDS RES.,9,4485-4494. (CHECKED BY AUTHOR 04/19/84)

193) **19.22.1'CL**: AKOLKAR,P.N.,SIKDER,S.K.,BHATTACHARYA,S.B.,LIAO,J.,GRUEZO,F.,MORRISON,S.L. & KABAT,E.A. (1987) J.IMMUNOL., 138,4472-4479. ERRATA CORRECTED 139,3911.

194) **2154'CL**: KELLEY,D.E.,WIEDEMANN,L.M.,PITTET,A.-C.,STRAUSS,S.,NELSON,K.J.,DAVIS,J.,VAN NESS,B. & PERRY,R.P. (1985) MOLEC. & CELL. BIOL.,5,7,1660-1675.

195) **I(KO)'CL**: VAN NESS,B.G.,WEIGERT,M.,COLECLOUGH,C.,MATHER,E.L.,KELLEY,D.E. & PERRY,R.P. (1981) CELL,27,593-602.

196) **5563(C3B)L**: SINGER,H.H.,GATES,F.T.,III,KINDT,T.J. & WILLIAMSON,A.R. (1980) EUR.J.IMMUNOL.,10,346-351. (CHECKED BY AUTHOR 11/06/80)

197) **42.9E5.2'CL**: WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

198) **4.14.3'CL**: WANG,D.,LIAO,J.,MITRA,D.,AKOLKAR,P.N.,GRUEZO,F. & KABAT,E.A. (1991) MOL.IMMUNOL., IN PRESS.

GENERAL NOTES: SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
HK100'CL	HUMAN FETAL LIVER DNA	118
HK101'CL	HUMAN FETAL LIVER DNA	125
HK102'CL	HUMAN FETAL LIVER DNA	125
MOPC173B'CL	MOUSE ADULT DNA	121
S107B'CL	MOUSE ADULT MYELOMA DNA	175
L8'CL	MOUSE ADULT LIVER DNA	175
K2'CL	MOUSE EMBRYO DNA	118
MPC11'CL	MOUSE ADULT DNA	242
VKAPPA167'CL	MOUSE ADULT LIVER DNA	365
L6'CL	MOUSE ADULT LIVER DNA	113
L7'CL	MOUSE ADULT LIVER DNA	206
T1'CL	MOUSE ADULT MYELOMA DNA	113
T2'CL	MOUSE ADULT MYELOMA DNA	215
VT1/B'CL	MOUSE ADULT MYELOMA DNA	113
VTNP'CL	MOUSE HYBRIDOMA DNA	177

SPECIFIC NOTES: SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS

13) **TF5-139'CL**: FROM BALB/c NEONATAL SPLEEN CELLS.

17) **MBr1'CL**: IT IS A CHIMERIC ANTIBODY WITH MOUSE VARIABLE REGIONS (FROM IGM-KAPPA) AND HUMAN CONSTANT REGIONS (FROM IGG1-KAPPA).

19) **K5.1'CL**: ISOLATED BY STRONG HYBRIDIZATION TO VK-GAT-SPECIFIC PROBES.

38) **K1A5'CL**: ISOLATED BY STRONG HYBRIDIZATION TO VK-GAT-SPECIFIC PROBES.

43) **K18.1'CL**: ISOLATED BY STRONG HYBRIDIZATION TO VK-GAT-SPECIFIC PROBES.

44) **RP93'CL**: IT WAS ISOLATED FROM A BALB/c MOUSE HYPERIMMUNIZED WITH PC-KLH.

60) **VKAPPA167'CL**: THE V REGION IS CALLED VKAPPA24'CL. SEE NOTES OF MOUSE KAPPA LIGHT CHAIN TABLE.

64) **2.7.1G.10'CL**: A MOUSE-HUMAN CHIMERIC ANTIBODY CONSISTING OF MOUSE VARIABLE REGIONS AND HUMAN CONSTANT REGIONS HAS THE SAME AFFINITY FOR ANTIGEN AS THE ORIGINAL MOUSE ANTIBODY.

67) **05'CL**: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.

68) **11'CL**: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.

69) **12'CL**: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.

72) **13'CL**: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.

73) **30'CL**: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.

74) **2B2'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

75) **12C4'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

77) **7B6'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

82) **6G11'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

84) **T3C'CL**: ANTI-IDIOTYPE ANTIBODY-RESISTANT VARIANT CELL LINE DERIVED FROM B CELL LYMPHOMA 38C13. TUMOR CELL ESCAPE DUE TO RE-REARRANGEMENT OF THE 38C13 TUMOR CELL IgKAPPA LOCUS.

85) **L8'CL**: THE SPLICING OUT OF THE INTRON OCCURS AT POSITION -6 INSTEAD OF THE USUAL POSITION -4.

86) **S107B'CL**: THE SPLICING OUT OF THE INTRON OCCURS AT POSITION -6 INSTEAD OF THE USUAL POSITION -4.

87) **T2E(1)'CL**: ANTI-IDIOTYPE ANTIBODY-RESISTANT VARIANT CELL LINE DERIVED FROM B CELL LYMPHOMA 38C13. TUMOR CELL ESCAPE DUE TO RE-REARRANGEMENT OF THE 38C13 TUMOR CELL IgKAPPA LOCUS.

90) **V-K10 ARS-A'CL**: TERMINATION CODON AT POSITION -13.

93) **2B1'CL**: A CHIMERIC ANTIBODY IS CONSTRUCTED FROM THE MOUSE V-REGION AND HUMAN C-KAPPA REGION.

100) **38C13V'CL**: ANTI-IDIOTYPE ANTIBODY-RESISTANT VARIANT CELL LINE DERIVED FROM B CELL LYMPHOMA 38C13. TUMOR CELL ESCAPE DUE TO RE-REARRANGEMENT OF THE 38C13 TUMOR CELL IgKAPPA LOCUS.

104) **RFT2'CL**: THE VARIABLE REGIONS OF LIGHT AND HEAVY CHAINS OF THIS HYBRIDOMA HAS BEEN JOINED TO CONSTANT REGIONS OF HUMAN KAPPA AND IGG1 (ENCODING ALLOTYPE nGlm(z) and nGlm(a) TO FORM A CHIMERIC ANTI-LYMPHOCYTE MONOCLONAL ANTIBODY, CHT2; SDZ 214-380. RFT2 AND CHT2 SHOWED IDENTICAL TISSUE REATIVITY.

126) **E225'CL**: IT REACTS WITH A PRIVATE IDIOTYPE OF THE ANTI-LYSOZYME ANTIBODY D1.3.

127) **MPC11**: THE TRANSLATED AMINO ACID SEQUENCE FROM NUCLEOTIDE SEQUENCE OF MPC11 AGREES WITH THIS.

129) **CEA 66-E3'CL**: THIS ANTIBODY IS SYNTHESIZED IN ESCHERICHIA COLI.

131) **CEM231.6.7'CL**: IT IS A MOUSE/HUMAN CHIMERIC ANTIBODY WITH MOUSE VARIABLE REGION AND HUMAN IGG1-KAPPA CONSTANT REGION.

133) **B6.2'CL**: THE V-REGIONS WERE USED TO CONSTRUCT A MURINE/HUMAN CHIMERIC ANTIBODY.

138) **L7'CL**: THE AUTHORS SUGGESTED THAT IT IS ALSO POSSIBLE TO SPLICE AT A DIFFERENT POSITION TO GIVE GLY AT POSITION -4 AND NO RESIDUES AT POSITIONS -3 TO -1.

140) **87.92.6'CL**: MONOCLONAL ANTI-IDIOTYPE ANTIBODY AGAINST THE 9B.G5 ANTIBODY SPECIFIC FOR THE VIRUS NEUTRALIZING EPITOPE ON THE MAMMALIAN REOVIRUS TYPE 3 HEMAGGLUTININ. IT EXPRESSES AN INTERNAL IMAGE OF THE RECEPTOR BINDING EPITOPE OF REOVIRUS TYPE 3, AND ALSO HAS AUTOIMMUNE REACTIVITY TO THE CELL SURFACE RECEPTOR OF REOVIRUS.

142) **10C11'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

143) **18G8'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

146) **5G11'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

147) **14B4'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

149) **6B10'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

150) **4F10'CL**: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.

154) **E26'CL**: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.

155) **3F2'CL**: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.

SPECIFIC NOTES: SIGNAL PEPTIDES OF MOUSE KAPPA LIGHT CHAINS (cont'd)

156) 12G10'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
157) 10G10'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
158) 3E3'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
159) 13D4'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
160) 9G6'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
161) 3B6'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
162) 11G3'CL: ISOLATED 7 DAYS AFTER PRIMARY IMMUNIZATION.
163) 564'CL: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.
164) 550'CL: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.
165) 563'CL: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.
169) 567'CL: PATHOGENIC AUTOANTIBODY PRODUCED BY NEPHRITIS PRONE (SWR X NZB)F1 (SNF1) MOUSE.
170) 10.4'CL: ANTI-IDIOTYPE ANTIBODY-RESISTANT VARIANT CELL LINE DERIVED FROM B CELL LYMPHOMA 38C13. TUMOR CELL ESCAPE DUE TO RE-REARRANGEMENT OF THE 38C13 TUMOR CELL IgKAPPA LOCUS.
171) 3C5'CL: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.
174) 2H7'CL: 2H7'CL IS A MOUSE ANTIBODY WHOSE VARIABLE REGIONS HAVE BEEN JOINED TO HUMAN IGG1 AND KAPPA CONSTANT REGIONS. THE RESULTING CHIMERIC MONOCLONAL ANTIBODY HAS STRONG ANTIBODY-DEPENDENT CELLULAR CYTOTOXICITY WITH HUMAN EFFECTOR CELLS AND COMPLEMENT-DEPENDENT CYTOTOXICITY WITH HUMAN COMPLEMENT.
176) 2C7'CL: THE SEQUENCE WAS OBTAINED BY TRANSLATING THE NUCLEOTIDE SEQUENCE OF MRNA OF HYBRIDOMA FROM ADULT MOUSE 7 DAYS AFTER IMMUNIZATION.
180) MPC11C: THIS SEGMENT IS CONNECTED DIRECTLY TO THE KAPPA LIGHT CHAIN CONSTANT REGION.
186) 91A3'CL: TERMINATION CODON AT POSITION -13.
188) MOPC41A: THE AMINO ACID SEQUENCE TRANSLATED FROM THE DNA SEQUENCE (SEIDMAN,J.G.,MAX,E.E. & LEDER,P. (1979) NATURE,280, 370-375.) HAS GLU AT POSITION -5.

+ THE FOLLOWING WERE EQUALLY AND MOST FREQUENTLY OCCURRING:

AT POSITION	RESIDUES
-19	(MET,GLN)

SIGNAL PEPTIDES OF MOUSE LAMBDA L

	INVARIANT RESIDUES	1 MOPC 104E	2 KL.SJA 83.12 'CL	3 RPC 20	4 IG 3(LAMBI 'CL
-21		---	---	---	---
-20	MET	MET	MET	MET	ME
-19	ALA	ALA	ALA	ALA	AL
-18	TRP	TRP	TRP	TRP	TR
-17		ILE	ILE	ILE	IL
-16		SER	SER	SER	SE
-15	LEU	LEU	LEU	LEU	LE
-14		ILE	ILE	ILE	IL
-13		LEU	LEU	LEU	LE
-12		SER	SER	SER	SE
-11		---	---	---	---
-10		LEU	LEU	LEU	LE
-9		LEU	LEU	LEU	LE
-8		ALA	ALA	ALA	AL
-7		LEU	LEU	LEU	LE
-6		SER	SER	SER	SI
-5	SER	SER	SER	SER	SI
-4	GLY	GLY	GLY	GLY	GI
-3		ALA	ALA	ALA	AL
-2		ILE	ILE	ILE	I:
-1	SER.	SER	SER	SER	S:

VARIABILITY

-21	
-20	1.
-19	1.
-18	1.
-17	3.4
-16	2.2
-15	1.
-14	2.2
-13	2.2
-12	2.2
-11	
-10	2.2
-9	2.2
-8	2.2
-7	2.2
-6	3.4
-5	1.
-4	1.
-3	2.2
-2	4.5
-1	1.

TUMOR CELL ESCAPE DUE

4 ADULT MOUSE 7 DAYS

% CONSTANT REGIONS.
ICITY WITH HUMAN

4 ADULT MOUSE 7 DAYS

,P. (1979) NATURE,280,

SIGNAL PEPTIDES OF MOUSE LAMBDA LIGHT CHAINS

	INVARIANT RESIDUES	1 MOPC 104E	2 KL.SJA 83.12 'CL	3 RPC 20	4 IG 303 LAMBDA 'CL	5 IG 99 LAMBDA 'CL	6 S43 'CL	7 MOPC 315 #	8 WES- IG13 'CL	9 SPE 'CL	VL	10 Y31 'CL #	11 HOPC -1'CL	12 MOPC 315-26 'CL'	# OF SEQUENCES	# OF AMINO ACIDS	OCCURRENCES OF MOST COMMON AMINO ACID
-21		---	---	---	---	---	---	---	---	---	---	---	---	---	12	1	12(MET)
-20	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	12	1	12(ALA)
-19	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	12	1	12(TRP)
-18	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	12	2	7(ILE)
-17		ILE	ILE	ILE	ILE	ILE	ILE	THR	THR	THR	THR	THR	ILE	THR			
-16		SER	SER	SER	SER	SER	SER	SER	SER	SER	PRO	SER	SER	SER	12	2	11(SER)
-15	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	12	1	12(LEU)
-14		ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	PHE	ILE	ILE	ILE	12	2	11(ILE)
-13		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	LEU	LEU	LEU	12	2	11(LEU)
-12		SER	SER	SER	SER	SER	SER	SER	SER	SER	PHE	SER	SER	SER	12	2	11(SER)
-11		---	---	---	---	---	---	---	---	---	---	---	---	---			
-10		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	LEU	LEU	LEU	12	2	11(LEU)
-9		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	VAL	LEU	LEU	LEU	12	2	11(LEU)
-8		ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	LEU	ALA	ALA	ALA	12	2	11(ALA)
-7		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	HIS	LEU	LEU	LEU	12	2	11(LEU)
-6		SER	SER	SER	SER	SER	SER	CYS	CYS	CYS	CYS	SER	CYS		12	2	7(SER)
-5	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	12	1	12(SER)
-4	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	12	1	12(GLY)
-3		ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	SER	ALA	ALA	ALA	12	2	11(ALA)
-2		ILE	ILE	ILE	ILE	ILE	ILE	SER	SER	ILE	PHE	ILE	SER		12	3	8(ILE)
-1	SER.	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	12	1	12(SER)

VARIABILITY

-21	
-20	1.
-19	1.
-18	1.
-17	3.4
-16	2.2
-15	1.
-14	2.2
-13	2.2
-12	2.2
-11	
-10	2.2
-9	2.2
-8	2.2
-7	2.2
-6	3.4
-5	1.
-4	1.
-3	2.2
-2	4.5
-1	1.

REFERENCE: SIGNAL PEPTIDES OF MOUSE LAMBDA LIGHT CHAINS

1) **MOPC104E**: BURSTEIN,Y. & SCHECHTER,I. (1977) PROC.NAT.ACAD.SCI.USA,74,716-720. (CHECKED BY AUTHOR)

2) *KL.SJA83.12'CL: WEISS,S.,LEHMANN,K. & COHN,M. (1985) EUR.J.IMMUNOL.,15,768-772.*

3) *RPC20: BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17,2392-2400. (CHECKED BY AUTHOR)*

4) **IG 303LAMBDA'CL**: BERNARD,O.,HOZUMI,N. & TONEGAWA,S. (1978) CELL,15,1133-1144. (CHECKED BY AUTHOR 08/06/79)

5) **IG 99LAMBDA'CL**: BERNARD,O.,HOZUMI,N. & TONEGAWA,S. (1978) CELL,15,1133-1144. (CHECKED BY AUTHOR 08/06/79)

6) **S43'CL**: BOTHWELL,A.L.M.,PASKIND,M.,RETH,M.,IMANISHI-KARI,T.,RAJEWSKY,K. & BALTIMORE,D. (1982) NATURE,298,380-382. (CHECKED BY AUTHOR 01/31/83)

7) **MOPC315**: BURSTEIN,Y. & SCHECHTER,I. (1977) BIOCHEM.J.,165,347-354; BURSTEIN,Y. & SCHECHTER,I. (1978) BIOCHEMISTRY,17, 2392-2400. (CHECKED BY AUTHOR 08/29/79)

8) **WES-IG13'CL**: TONEGAWA,S.,MAXAM,A.M.,TIZARD,R.,BERNARD,O. & GILBERT,W. (1978) PROC.NAT.ACAD.SCI.USA,75,1485-1489. (CHECKED BY AUTHOR 08/06/79)

9) **SPE VL'CL**: MAMI,F. & KINDT,T.J. (1987) IMMUNOGENET.,26,291-295.

10) **Y31'CL**: SANCHEZ,P.,MARCHE,P.N.,LE GUERN,C. & CAZENAVE, P.-A. (1987) PROC.NATL.ACAD.SCI.USA,84,9185-9188; SANCHEZ,P., MARCHE,P.N.,RUEFF-JUY,D. & CAZENAVE,P.-A. (1990) J.IMMUNOL.,144,2816-2820.

11) **HOPC-1'CL**: ALONSO,A.,HOZUMI,N. & MURIALDO,H. (1985) J.IMMUNOL.,135,1,614-619. (CHECKED BY AUTHOR 09/26/85)

12) **MOPC315-26'CL'**: WU,G.E.,GOVINDJI,N.,HOZUMI,V. & MURIALDO,H. (1982) NUC.ACIDS RES.,10,3831-3843. (CHECKED BY AUTHOR 05/30/83)

GENERAL NOTES: SIGNAL PEPTIDES OF MOUSE LAMBDA LIGHT CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
S43'CL	MOUSE MYELOMA CDNA	
IG303LAMBDA'CL	MOUSE H2020 MYELOMA DNA	93
IG99LAMBDA'CL	MOUSE EMBRYO DNA	93
WES-IG13'CL	MOUSE EMBRYO DNA	93
MOPC315-26'CL'	MOUSE MYELOMA DNA	93
243'CL	CHICKEN SPLEEN CELL CDNA	

SPECIFIC NOTES: SIGNAL PEPTIDES OF MOUSE LAMBDA LIGHT CHAINS

7) **MOPC315**: IT HAS ALSO BEEN SEQUENCED BY OTHERS (JILKA,R.L. & PESTKA,S. (1979) J.BIOL.CHEM.,254,9270-9276.); THEY FOUND SER AT POSITION -3 INSTEAD OF ALA, AND ALA AT POSITION -2 INSTEAD OF SER. THE LISTED SEQUENCE IS IN AGREEMENT WITH THAT TRANSLATED FROM THE NUCLEOTIDE SEQUENCE OF A CLONE OF MOUSE MYELOMA CDNA (BOTHWELL,A.L.M.,PASKIND,M., RETH,M.,IMANISHI-KARI,T.,RAJEWSKY,K. & BALTIMORE,D. (1982) NATURE,298,380-382).

10) **Y31'CL**: THIS IS A NEW MOUSE LAMBDA LIGHT CHAIN GENE DESIGNATED AS lambda x.

SIGNAL PEPTIDES OF MISCELLANEOU

INVARIANT RESIDUES	1 YTH 34'CL	2 SHL 102	3 IR- Y3-Ag 1.2.3 'CL
-29	---	---	---
-28	---	---	---
-27	---	---	---
-26	---	---	---
-25	---	MET	---
-24	---	GLY	---
-23	---	VAL	---
-22	MET	ARG	---
-21	MET	MET	ME
-20	ALA	GLU	GI
-19	ALA	SER	SI
-18	LEU	HIS	GI
-17	GLN	THR	TI
-16	LEU	ARG	G
-15	LEU	VAL	V
-14	GLY	PHE	L
-13	VAL	ILE	M
-12	ALA	PHE	S
-11	ALA	LEU	I
-10	SER	LEU	I
-9	SER	LEU	I
-8	GLY	TRP	.
-7	SER	LEU	.
-6	GLN	SER	.
-5	ALA	GLY	.
-4	MET	THR	.
-3	ARG	ASP	
-2	CYS	GLY	
-1			

SIGNAL PEPTIDES OF MISCELLANEOUS KAPPA LIGHT CHAINS

	INVARIANT RESIDUES	1 YTH 34.5HL 'CL	2 IR-102	3 Y3-Aq 1.2.3. 'CL	4 IR-52	5 IR-487A	6 IR-487B	7 V18A 'CL	8 V20 'CL	9 17D9 'CL	10 V19A 'CL	11 V18B 'CL	12 3C8 'CL	13 V19B 'CL	14 RMH 12F2 #	15 12F2 B2'CL #	16 RAB B5'CL	17 HORNED SHARK 1122 'CL	# OF SEQUENCES	# OF AMINO ACIDS
-29		---	---	---	---	---	---	---	---		---	---		---	---	---		---		
-28		---	---	---	---	---	---	---	---		---	---		---	---	---		---		
-27		---	---	---	---	---	---	---	---		---	---		---	---	---		---		
-26		---	---	---	---	---	---	---	---		---	---		---	---	---		---		
-25		---	---	---	---	---	---	---	---		---	---		---	---	---		---	1	1
-24		---	MET	---	---	---	---	---	---		---	---		---	---	---		---	1	1
-23		---	GLY	---	---	---	---	---	---		---	---		---	---	---		---	9	2
-22		---	VAL	---	---	MET	---	MET	MET		MET	MET		MET	MET	MET		---	8	3
-21		MET	ARG	---	---	ASP	---	ASP	ASP		ASP	ASP		ASP				---	12	2
-20		MET	MET	MET	MET	MET	MET	THR	THR		THR	THR		THR			THR	---		
-19		ALA	GLU	GLU	MET			ARG	ARG		ARG	ARG		ARG			ARG	---	10	4
-18		ALA	SER	SER				ALA	ALA		ALA	ALA		ALA			ALA	---	9	2
-17		LEU	HIS	GLN	PRO			PRO	PRO		PRO	PRO		PRO			PRO	---	10	4
-16		GLN	THR	THR				THR	THR		THR	THR		THR			ALA	MET	10	4
-15		LEU	ARG	GLN				GLN	GLN		GLN	GLN		GLN			GLN	TYR	10	4
-14		LEU	VAL	VAL	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	15	2
-13		GLY	PHE	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	17	3
-12		VAL	ILE	MET		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY			GLY	GLY	14	4
-11		ALA	PHE	SER	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	THR	15	5
-10		ALA	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	17	2
-9		SER	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	17	2
-8		SER	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	17	2
-7		GLY	TRP	TRP				TRP	TRP	TRP	TRP	TRP	TRP	TRP			TRP	HIS	12	3
-6		SER	LEU	ILE	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	15	3
-5		GLN	SER	SER	PRO			PRO	PRO	PRO	PRO	PRO	PRO	PRO		PRO	PRO	THR	14	4
-4		ALA	GLY	GLY		GLY	GLY	GLY	ASP	GLY	GLY	GLY	GLY	GLY		GLY	GLY	GLY	15	3
-3		MET	THR	THR	MET			ALA	ALA	ALA	ALA	ALA	ALA	ALA		ALA	ALA	VAL	14	4
-2		ARG	ASP	CYS				ILE	ARG	ARG	THR	THR	ARG	ARG		ARG	ARG	LEU	13	6
-1		CYS	GLY	GLY				CYS	CYS	CYS	PHE	PHE	CYS	CYS		CYS	CYS	ALA	13	4

PRECURSOR OF:

1) YTH 34.5HL'CL: RAT KAPPA LIGHT CHAIN
2) IR-102: RAT KAPPA LIGHT CHAIN OF IR-102
3) Y3-Ag 1.2.3.'CL: RAT KAPPA LIGHT CHAIN
4) IR-52: RAT KAPPA LIGHT CHAIN OF IR-52
5) IR-487A: RAT KAPPA LIGHT CHAIN OF IR-487 (2 DIFFERENT PRECURSORS)
6) IR-487B: RAT KAPPA LIGHT CHAIN OF IR-487 (2 DIFFERENT PRECURSORS)
7) V18A'CL: RABBIT KAPPA LIGHT CHAIN
8) V20'CL: RABBIT KAPPA LIGHT CHAIN
9) 17D9'CL: RABBIT KAPPA LIGHT CHAIN
10) V19A'CL: RABBIT KAPPA LIGHT CHAIN
11) V18B'CL: RABBIT KAPPA LIGHT CHAIN
12) 3C8'CL: RABBIT KAPPA LIGHT CHAIN
13) V19B'CL: RABBIT KAPPA LIGHT CHAIN
14) RMH 12F2: RABBIT KAPPA LIGHT CHAIN
15) 12F2 B2'CL: RABBIT KAPPA LIGHT CHAIN
16) RAB B5'CL: RABBIT KAPPA LIGHT CHAIN
17) HORNED SHARK 1122'CL: HORNED SHARK KAPPA LIGHT CHAIN

REFERENCE: SIGNAL PEPTIDES OF MISCELLANEOUS KAPPA LIGHT CHAINS

1) YTH 34.5HL'CL: RIECHMANN,L.,CLARK,M.,WALDMANN,H. & WINTER,G. (1988) NATURE,332,323-327.
2) IR-102: BURSTEIN,Y.,BAZIN,H. & SCHECHTER,I. (1979) ISRAEL J.MED.SCI.,15,101-102; SCHECHTER,I.,WOLF,O.,ZEMELL,R. & BURSTEIN,Y. (1979) FED.PROC.,38,1839-1845. (CHECKED BY AUTHOR 08/29/79)
3) Y3-Ag 1.2.3.'CL: CROWE,J.S.,SMITH,M.A. & COOPER,H.J. (1989) NUCL.ACIDS RES.,17,7992.
4) IR-52: BURSTEIN,Y.,BAZIN,H.,ZIV,E.,KANTOR,F. & SCHECHTER,I. (1982) BIOCHEM.BIOPHYS.RES.COMMUN.,105,1408-1415. (CHECKED BY AUTHOR 12/15/82)
5) IR-487A: BURSTEIN,Y.,BAZIN,H.,ZIV,E.,KANTOR,F. & SCHECHTER,I. (1982) BIOCHEM.BIOPHYS.RES.COMMUN.,105,1408-1415. (CHECKED BY AUTHOR 12/15/82)
6) IR-487B: BURSTEIN,Y.,BAZIN,H.,ZIV,E.,KANTOR,F. & SCHECHTER,I. (1982) BIOCHEM.BIOPHYS.RES.COMMUN.,105,1408-1415. (CHECKED BY AUTHOR 12/15/82)
7) V18A'CL: HEIDMANN,O. & ROUGEON,F. (1984) NATURE,311,74-76.
8) V20'CL: LIEBERMAN,R.,EMORINE,L. & MAX,E.E. (1984) J.IMMUN.,133,5,2753-2756.
9) 17D9'CL: MCCARTNEY-FRANCIS,N.,SKURLA,R.M.,JR.,MAGE,R.E. & BERNSTEIN,K.E. (1984) PROC.NAT.ACAD.SCI.USA,81,1794-1798.
10) V19A'CL: HEIDMANN,O. & ROUGEON,F. (1984) NATURE,311,74-76.
11) V18B'CL: HEIDMANN,O. & ROUGEON,F. (1984) NATURE,311,74-76.
12) 3C8'CL: BERNSTEIN,K.E.,LAMOYI,E.,MCCARTNEY-FRANCIS,N. & MAGE,R.G. (1984) J.EXP.MED.,159,635-640.
13) V19B'CL: HEIDMANN,O. & ROUGEON,F. (1984) NATURE,311,74-76.
14) RMH 12F2: DREHER,K.L.,SOGN,J.A,GATES,F.T.,III,KUO,M.C. & KINDT,T.J. (1983) J.IMMUNOL.,130,442-448.
15) 12F2 B2'CL: HEIDMANN,O.,AUFFRAY,C.,CAZENAVE,P.A. & ROUGEON,F. (1981) PROC.NAT.ACAD.SCI.USA,78,5802-5806; DREHER,K.L., EMORINE,L.,KINDT,T.J. & MAX,E.E. (1983) PROC.NAT.ACAD.SCI.USA,80,4489-4493; DREHER,K.L.,SOGN,J.A.,GATES,F.T.,III, KUO,M.C. & KINDT,T.J. (1983) J.IMMUNOL.,130,442-448. (CHECKED BY AUTHOR 07/01/85)
16) RAB B5'CL: BERNSTEIN,K.E.,SKURLA,R.M.JR. & MAGE,R.G.,(1983) NUC.ACIDS RES.,11,7205-7214.
17) HORNED SHARK 1122'CL: SHAMBLOTT,M.J. & LITMAN,G.W. (1989) EMBO J.,8,3733-3739.

GENERAL NOTES: SIGNAL PEPTIDES OF MISCELLANEOUS KAPPA LIGHT CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
HK100'CL	HUMAN FETAL LIVER DNA	118
HK101'CL	HUMAN FETAL LIVER DNA	125
HK102'CL	HUMAN FETAL LIVER DNA	125
MOPC173B'CL	MOUSE ADULT DNA	121
S107B'CL	MOUSE ADULT MYELOMA DNA	175
L8'CL	MOUSE ADULT LIVER DNA	175
K2'CL	MOUSE EMBRYO DNA	118
MPC11'CL	MOUSE ADULT DNA	242
VKAPPA167'CL	MOUSE ADULT LIVER DNA	365
L6'CL	MOUSE ADULT LIVER DNA	113
L7'CL	MOUSE ADULT LIVER DNA	206
T1'CL	MOUSE ADULT MYELOMA DNA	113
T2'CL	MOUSE ADULT MYELOMA DNA	215
VT1/B'CL	MOUSE ADULT MYELOMA DNA	113
VTNP'CL	MOUSE HYBRIDOMA DNA	177

SPECIFIC NOTES: SIGNAL PEPTIDES OF MISCELLANEOUS KAPPA LIGHT CHAINS

14) RMH 12F2: THIS IS OBTAINED FROM A RABBIT-MOUSE HYBRIDOMA (RMH).
15) 12F2 B2'CL: POSITIONS -22,-14,-13,-11 TO -8 WERE DETERMINED BY AMINO ACID SEQUENCING. THE CONSTANT REGION IS CALLED RABBIT K1B4'CL. THE AUTHORS ALSO CALL THIS SEQUENCE PB4D5.

SIGNAL PEPTIDES OF MISCELLAN

	INVARIANT RESIDUES	1 RAT VL 'CL	2 pDH7 'CL #	3 rVL3 'CL
-21	MET	---	---	---
-20		MET	MET	MET
-19		THR	ALA	ALA
-18		CYS	CYS	CYS
-17		THR	THR	THR
-16		SER	PRO	PRO
-15	LEU	LEU	LEU	LEU
-14	LEU	LEU	LEU	LEU
-13		LEU	LEU	LEU
-12		ILE	LEU	LEU
-11	LEU	---	LEU	LEU
-10		LEU	THR	THR
-9		LEU	LEU	LEU
-8		ALA	LEU	LEU
-7		VAL	GLN	GLN
-6		CYS	CYS	SER
-5		SER	THR	THR
-4		GLY	GLY	GLY
-3		ALA	SER	SER
-2		ILE	LEU	LEU
-1		SER	SER	SER

	22 CLONE E5 'CL	23 CLONE 5 'CL	24 CLONE 12 'CL	25 CHICK V1 'CL
-21				
-20				
-19				
-18				
-17				
-16				
-15				
-14				
-13				
-12				
-11				
-10				
-9				
-8				
-7				
-6				
-5	SER	SER	SER	PR
-4	LEU	LEU	LEU	AR
-3	VAL	VAL	VAL	LE
-2	GLN	GLN	GLN	TR
-1	ALA	ALA	ALA	AS

SIGNAL PEPTIDES OF MISCELLANEOUS LAMBDA LIGHT CHAINS

	INVARIANT RESIDUES	1 RAT VL 'CL	2 pDH7 'CL #	3 rVL3 'CL	4 pDH8 'CL	5 rVL2 'CL	6 G4 'CL	7 G4 GERM-LINE 'CL	8 S11 'CL #	9 IgL 'CL	10 B19/g1 'CL	11 bu 36 'CL	12 sp 126 'CL	13 243 'CL	14 H18 'CL #	15 H13 'CL #	16 H11 'CL #	17 bu 24 'CL	18 bu 2 'CL	19 sp 1 'CL	20 SHEEP pSLC 'CL #	21 CHICKEN LAMBDA 1 'CL
-21	MET	---	---	---		---				MET					MET						---	MET
-20		MET	MET	MET		MET				ALA					ALA						MET	ALA
-19		THR	ALA	ALA		ALA				TRP					TRP						TRP	ALA
-18		CYS	CYS	CYS		CYS				ALA					ALA						SER	PRO
-17		THR	THR	THR		THR				PRO					PRO						PRO	LEU
-16		SER	PRO	PRO		PRO				LEU					LEU		LEU				LEU	LEU
-15	LEU	LEU	LEU	LEU		LEU				LEU					LEU		LEU				LEU	LEU
-14	LEU	LEU	LEU	LEU		LEU				LEU					ALA	ALA	ALA				LEU	ALA
-13		LEU	LEU	LEU		LEU			ALA	ALA					VAL	VAL	VAL				THR	VAL
-12		ILE	LEU	LEU		LEU			VAL	VAL												
-11	LEU	---	LEU	LEU		LEU			LEU	LEU					LEU	LEU	LEU				---	LEU
-10		LEU	THR	THR		THR			ALA	ALA					ALA	ALA	ALA				LEU	ALA
-9		LEU	LEU	LEU		LEU			HIS	HIS					HIS	HIS	HIS				VAL	HIS
-8		ALA	LEU	LEU		LEU			THR	THR					THR	THR	THR				ALA	THR
-7		VAL	GLN	GLN		GLN			SER	SER				SER	SER	SER	SER				LEU	SER
-6		CYS	CYS	SER		CYS			GLY	GLY				GLY	GLY	GLY	GLY				CYS	GLY
-5		SER	THR	THR	THR	THR	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	THR	SER
-4		GLY	GLY	GLY	GLY	GLY	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	GLY	LEU
-3		ALA	SER	SER	SER	SER	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	SER	VAL
-2		ILE	LEU	LEU	LEU	LEU	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	TRP	GLN
-1		SER	SER	SER	SER	SER	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA

	22 CLONE B5 'CL	23 CLONE 5 'CL	24 CLONE 12 'CL	25 CHICKEN V1 'CL	26 CHICKEN V2 'CL	27 CHICKEN V3 'CL	# OF SEQUENCES	# OF AMINO ACIDS
-21							3	1
-20							8	2
-19							8	3
-18							8	3
-17							8	3
-16							9	1
-15							9	1
-14							11	2
-13							11	4
-12							9	1
-11							11	3
-10							11	3
-9							11	3
-8							12	4
-7							12	3
-6							27	4
-5	SER	SER	SER	PRO	SER	ALA	27	4
-4	LEU	LEU	LEU	ARG	LEU	TYR	27	4
-3	VAL	VAL	VAL	LEU	VAL	SER	27	4
-2	GLN	GLN	GLN	TRP	GLN	ARG	27	5
-1	ALA	ALA	ALA	ASP	ALA	GLY	27	4

OLF,O.,ZEMELL,R. &

105,1408-1415. (CHECKED

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CI.USA,81,1794-1798.

48.

802-5806; DRSHER,K.L.,
,SOGN,J.A.,GATES,F.T.,III,

ASES OF VARYING LENGTHS.
OR WITHIN POSITION -4.
EFINE THE JOINING AS
ISTED BELOW:

3TANT REGION IS CALLED

PRECURSOR OF:

1) RAT VL'CL: RAT LAMBDA LIGHT CHAIN
2) pDH7'CL: BASILEA RABBIT LAMBDA LIGHT CHAIN
3) rVL3'CL: RABBIT LAMBDA LIGHT CHAIN
4) pDH8'CL: BASILEA RABBIT LAMBDA LIGHT CHAIN
5) rVL2'CL: RABBIT LAMBDA LIGHT CHAIN
6) G4'CL: CHICKEN LAMBDA LIGHT CHAIN
7) G4 GERMLINE'CL: CHICKEN LAMBDA LIGHT CHAIN
8) S11'CL: CHICKEN LAMBDA LIGHT CHAIN
9) IgL'CL: CHICKEN LAMBDA LIGHT CHAIN
10) B19/g1'CL: CHICKEN LAMBDA LIGHT CHAIN
11) bu 36'CL: CHICKEN LAMBDA LIGHT CHAIN
12) sp 126'CL: CHICKEN LAMBDA LIGHT CHAIN
13) 243'CL: CHICKEN LAMBDA LIGHT CHAIN
14) H18'CL: CHICKEN LAMBDA LIGHT CHAIN
15) H13'CL: CHICKEN LAMBDA LIGHT CHAIN
16) H11'CL: CHICKEN LAMBDA LIGHT CHAIN
17) bu 24'CL: CHICKEN LAMBDA LIGHT CHAIN
18) bu 2'CL: CHICKEN LAMBDA LIGHT CHAIN
19) sp 1'CL: CHICKEN LAMBDA LIGHT CHAIN
20) SHEEP pSLC'CL: SHEEP LAMDA CHAIN
21) CHICKEN LAMBDA 1 'CL: CHICKEN LAMBDA LIGHT CHAIN
22) CLONE E5'CL: CHICKEN LAMBDA LIGHT CHAIN
23) CLONE 5'CL: CHICKEN LAMBDA LIGHT CHAIN
24) CLONE 12'CL: CHICKEN LAMBDA LIGHT CHAIN
25) CHICKEN V1 'CL: CHICKEN V1 IN PSEUDOGENES OF VARIABLE REGION
26) CHICKEN V2 'CL: CHICKEN V2 IN PSEUDOGENES OF VARIABLE REGION
27) CHICKEN V3 'CL: CHICKEN V3 IN PSEUDOGENES OF VARIABLE REGION

REFERENCE: SIGNAL PEPTIDES OF MISCELLANEOUS LAMBDA LIGHT CHAINS

1) RAT VL'CL: STEEN,M.-L.,HELLMAN,L. & PETTERSSON,U. (1987) GENE,55,75-84.
2) pDH7'CL: HAYZER,D.J. & JATON,J.-C. (1987) J.IMMUNOL.,138,2316-2322. (CHECKED BY AUTHOR 07/13/87)
3) rVL3'CL: HAYZER,D.J. & JATON,J.-C. (1989) GENE,80,185-191.
4) pDH8'CL: HAYZER,D.J. & JATON,J.-C. (1989) GENE,80,185-191.
5) rVL2'CL: HAYZER,D.J. & JATON,J.-C. (1989) GENE,80,185-191.
6) G4'CL: KIM,S.,HUMPHRIES,E.H.,TJOELKER,L.,CARLSON,L. & THOMPSON,C.B. (1990) MOL.CELL.BIOL.,10,3224-3231.
7) G4 GERMLINE'CL: KIM,S.,HUMPHRIES,E.H.,TJOELKER,L.,CARLSON,L. & THOMPSON,C.B. (1990) MOL.CELL.BIOL.,10,3224-3231.
8) S11'CL: PARVARI,R.,ZIV,E.,LENTNER,F.,TEL-OR,S.,BURSTEIN,Y. & SCHECHTER,I. (1987) EMBO J.,6,97-102.
9) IgL'CL: MCCORMACK,W.T.,TJOELKER,L.W.,CARLSON,L.M.,PETRYNIAK,B.,BARTH,C.F.,HUMPHRIES,E.H. & THOMPSON,C.B. (1989) CELL,56, 785-791.
10) B19/g1'CL: PARVARI,R.,ZIV,E.,LANTNER,F.,HELLER,D. & SCHECHTER,I. (1990) PROC.NATL.ACAD.SCI.USA,87,3072-3076.
11) bu 36'CL: PARVARI,R.,ZIV,E.,LANTNER,F.,HELLER,D. & SCHECHTER,I. (1990) PROC.NATL.ACAD.SCI.USA,87,3072-3076.
12) sp 126'CL: PARVARI,R.,ZIV,E.,LANTNER,F.,HELLER,D. & SCHECHTER,I. (1990) PROC.NATL.ACAD.SCI.USA,87,3072-3076.
13) 243'CL: REYNAUD,C.A.,DAHAN,A. & WEILL,J.C. (1983) PROC.NAT.ACAD.SCI.USA,80,4099-4103. (CHECKED BY AUTHOR 02/22/85)
14) H18'CL: PARVARI,R.,ZIV,E.,LENTNER,F.,TEL-OR,S.,BURSTEIN,Y. & SCHECHTER,I. (1987) EMBO J.,6,97-102.
15) H13'CL: PARVARI,R.,ZIV,E.,LENTNER,F.,TEL-OR,S.,BURSTEIN,Y. & SCHECHTER,I. (1987) EMBO J.,6,97-102.
16) H11'CL: PARVARI,R.,ZIV,E.,LENTNER,F.,TEL-OR,S.,BURSTEIN,Y. & SCHECHTER,I. (1987) EMBO J.,6,97-102.
17) bu 24'CL: PARVARI,R.,ZIV,E.,LANTNER,F.,HELLER,D. & SCHECHTER,I. (1990) PROC.NATL.ACAD.SCI.USA,87,3072-3076.
18) bu 2'CL: PARVARI,R.,ZIV,E.,LANTNER,F.,HELLER,D. & SCHECHTER,I. (1990) PROC.NATL.ACAD.SCI.USA,87,3072-3076.
19) sp 1'CL: PARVARI,R.,ZIV,E.,LANTNER,F.,HELLER,D. & SCHECHTER,I. (1990) PROC.NATL.ACAD.SCI.USA,87,3072-3076.
20) SHEEP pSLC'CL: FOLEY,R.C. & BEH,K.J. (1989) J.IMMUNOL.,142,708-711.
21) CHICKEN LAMBDA 1 'CL: REYNAUD,C.-A.,ANQUEZ,V.,DAHAN,A. & WEILL,J.-C. (1985) CELL,40,283-291.
22) CLONE E5'CL: KIM,S.,HUMPHRIES,E.H.,TJOELKER,L.,CARLSON,L. & THOMPSON,C.B. (1990) MOL.CELL.BIOL.,10,3224-3231.
23) CLONE 5'CL: KIM,S.,HUMPHRIES,E.H.,TJOELKER,L.,CARLSON,L. & THOMPSON,C.B. (1990) MOL.CELL.BIOL.,10,3224-3231.
24) CLONE 12'CL: KIM,S.,HUMPHRIES,E.H.,TJOELKER,L.,CARLSON,L. & THOMPSON,C.B. (1990) MOL.CELL.BIOL.,10,3224-3231.
25) CHICKEN V1 'CL: REYNAUD,C.-A.,ANQUEZ,V.,DAHAN,A. & WEILL,J.-C. (1985) CELL,40,283-291.
26) CHICKEN V2 'CL: REYNAUD,C.-A.,ANQUEZ,V.,DAHAN,A. & WEILL,J.-C. (1985) CELL,40,283-291.
27) CHICKEN V3 'CL: REYNAUD,C.-A.,ANQUEZ,V.,DAHAN,A. & WEILL,J.-C. (1985) CELL,40,283-291.

GENERAL NOTES: SIGNAL PEPTIDES OF MISCELLANEOUS LAMBDA LIGHT CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
S43'CL	MOUSE MYELOMA CDNA	
IG303LAMBDA'CL	MOUSE H2020 MYELOMA DNA	93
IG99LAMBDA'CL	MOUSE EMBRYO DNA	93
WES-IG13'CL	MOUSE EMBRYO DNA	93
MOPC315-26'CL'	MOUSE MYELOMA DNA	93
243'CL	CHICKEN SPLEEN CELL CDNA	

SPECIFIC NOTES: SIGNAL PEPTIDES OF MISCELLANEOUS LAMBDA LIGHT CHAINS

2) pDH7'CL: ISOLATED FROM SPLEEN OF BASILEA RABBIT HYPERIMMUNIZED WITH TYPE II PNEUMOCOCCAL POLYSACCHARIDE.
8) S11'CL: FROM cDNA OF CHICKEN SPLEEN.
14) H18'CL: FROM cDNA OF CHICKEN HARDER GLAND (A GLAND ENRICHED WITH IMMUNOCYTES).
15) H13'CL: FROM cDNA OF CHICKEN HARDER GLAND (A GLAND ENRICHED WITH IMMUNOCYTES).
16) H11'CL: FROM cDNA OF CHICKEN HARDER GLAND (A GLAND ENRICHED WITH IMMUNOCYTES).
20) SHEEP pSLC'CL: TRANSLATED FROM cDNA OF SHEEP LYMPHOCYTES

SIGNAL PEPTIDES OF HUMAN HEAV

INVARIANT RESIDUES	1 21-2 'CL	2 3-1 'CL	3 1-92 'CL	4 V 'C
-20	MET	MET	MET	MET M
-19		ASP	ASP	ASP A
-18		TRP	TRP	TRP T
-17		THR	THR	THR T
-16		TRP	TRP	TRP T
-15		ARG	ARG	ARG
-14		VAL	VAL	ILE
-13		PHE	PHE	LEU
-12		CYS	CYS	PHE
-11		---	---	---
-10		LEU	LEU	LEU
-9		LEU	LEU	VAL
-8		ALA	ALA	ALA
-7		VAL	VAL	ALA
-6		ALA	ALA	ALA
-5		PRO	PRO	THR
-4		GLY	GLY	GLY
-3		ALA	ALA	ALA
-2		HIS	HIS	HIS
-1		SER	SER	SER

	22 ND 'CL	23 1B9/F2 'CL #	24 71-5 'CL #	25 VH251 'CL	5
-20	MET	MET	MET	MET	
-19	ASP	ASP	ASP	GLY	
-18	TRP	TRP	TRP	SER	
-17	THR	THR	ILE	THR	
-16	TRP	TRP	TRP	ALA	
-15	---	SER	ARG	ILE	
-14	ILE	ILE	ILE	LEU	
-13	LEU	LEU	LEU	ALA	
-12	PHE	PHE	PHE	LEU	
-11	---	---	---	---	
-10	LEU	LEU	LEU	LEU	
-9	VAL	VAL	VAL	LEU	
-8	ALA	ALA	GLY	ALA	
-7	ALA	ALA	ALA	ILE	
-6	ALA	ALA	ALA	LEU	
-5	THR	THR	THR	GLN	
-4	ARG	GLY	GLY	GLY	
-3	VAL	ALA	ALA	VAL	
-2	HIS	HIS	HIS	CYS	
-1	SER	SER	SER	ALA	

	43 C6B2 'CL	44 58P2 'CL #	45 SUP-T1 VH-JA 'CL #	46 11 'CL	4 7 '
-20	MET	MET	MET	MET	M
-19	LYS	LYS	LYS	LYS	L
-18	HIS	HIS	HIS	HIS	H
-17	LEU	LEU	LEU	LEU	L
-16	TRP	TRP	TRP	TRP	T
-15	PHE	PHE	PHE	PHE	P
-14	PHE	PHE	PHE	PHE	P
-13	LEU	LEU	LEU	LEU	L
-12	LEU	LEU	LEU	LEU	L
-11	---	---	---	---	-
-10	LEU	LEU	LEU	LEU	L
-9	VAL	VAL	VAL	VAL	V
-8	ALA	ALA	ALA	ALA	A
-7	ALA	ALA	ALA	ALA	A
-6	PRO	PRO	PRO	PRO	P
-5	ARG	ARG	ARG	ARG	A
-4	TRP	TRP	TRP	TRP	T
-3	VAL	VAL	VAL	VAL	V
-2	LEU	LEU	LEU	LEU	L
-1	SER	SER	SER	SER	S

	66 Ab25 'CL	67 RF-KL1 'CL	68 Ab21 'CL	69 Vh38 C1.1 'CL
-20	MET	MET	MET	MET
-19	GLU	GLU	GLU	GLU
-18	PHE	PHE	PHE	PHE
-17	GLY	GLY	GLY	GLY
-16	LEU	LEU	LEU	LEU
-15	SER	SER	ARG	SER
-14	TRP	TRP	TRP	TRP
-13	LEU	LEU	LEU	LEU
-12	PHE	PHE	PHE	PHE
-11	---	---	---	---
-10	LEU	LEU	LEU	LEU
-9	VAL	VAL	VAL	VAL
-8	ALA	ALA	ALA	ALA
-7	ILE	ILE	ILE	ILE
-6	LEU	LEU	LEU	LEU
-5	LYS	LYS	LYS	LYS
-4	GLY	GLY	GLY	GLY
-3	VAL	VAL	VAL	VAL
-2	GLN	GLN	GLN	GLN
-1	CYS	CYS	CYS	CYS

SIGNAL PEPTIDES OF HUMAN HEAVY CHAINS

INVARIANT RESIDUES	1 21-2 'CL	2 3-1 'CL	3 1-92 'CL	4 V35 'CL	5 HG3 'CL	6 E3-10 'CL	7 WIL2 'CL	8 LS2 'CL	9 LS5 'CL	10 LS1 'CL	11 LS4 'CL	12 RF-TS3 'CL	13 51P1 'CL #	14 hv1263 'CL	15 783c 'CL #	16 EV1-15 'CL	17 X17115 'CL	18 AND 'CL	19 NEI 'CL	20 RF-TS1 'CL	21 HP1 'CL
-20	MET	MET	MET	MET	MET		MET	MET	MET	MET	MET			MET	MET		MET	MET	MET	MET	MET
-19		ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP		ASP	ASP	ASP		ASP	ASP	ASP	ASP	ASP
-18		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP		TRP	TRP	TRP		TRP	TRP	TRP	TRP	TRP
-17		THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		THR	THR	THR		THR	THR	THR	THR	THR
-16		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP		TRP	TRP	GLY		TRP	TRP	TRP	TRP	TRP
-15		ARG	ARG	ARG	ARG	ARG	ARG	SER	SER	SER	SER		ARG	ARG	ARG		ARG	ARG	ARG	ARG	ARG
-14		VAL	VAL	ILE	ILE	VAL	ILE	ILE	ILE	ILE	ILE		PHE	PHE	PHE		PHE	PHE	PHE	ILE	ILE
-13		PHE	PHE	LEU	LEU	PHE	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU
-12		CYS	CYS	PHE	PHE	CYS	PHE	PHE	PHE	PHE	PHE		PHE	PHE	PHE		PHE	PHE	PHE	PHE	PHE
-11		---	---	---	---	---	---	---	---	---	---		---	---	---		---	---	---	---	---
-10		LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU		VAL	VAL	VAL		VAL	VAL	VAL	VAL	LEU
-9		LEU	LEU	VAL	VAL	LEU	VAL	VAL	VAL	VAL	VAL		VAL	VAL	VAL		VAL	VAL	VAL	VAL	VAL
-8		ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA		ALA	ALA	ALA		ALA	ALA	ALA	ALA	ALA
-7		VAL	VAL	ALA	ALA	VAL	ALA	ALA	ALA	ALA	ALA		ALA	ALA	ALA		ALA	ALA	ALA	ALA	ALA
-6		ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA		ALA	ALA	ALA		ALA	ALA	ALA	ALA	ALA
-5		PRO	PRO	THR	THR	PRO		THR	THR	THR	THR	THR	ILE	THR	THR		THR	THR	THR	THR	THR
-4		GLY	GLY	GLY	GLY	GLY		GLY	GLY	GLY	GLY	GLY	SER	GLY	GLY		GLY	GLY	GLY	GLY	GLY
-3		ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	VAL	VAL	VAL	VAL	VAL	VAL	VAL	ALA
-2		HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	ALA	GLN	GLN	GLN	GLN	GLN	GLN	GLN	HIS
-1		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER

	22 ND 'CL	23 1B9/F2 'CL #	24 71-5 'CL #	25 VH251 'CL	26 5-1R1 'CL	27 VhAU 'CL	28 WS1 'CL	29 Vh 383ex 'CL	30 5-2R1 'CL	31 lambda IGD-1 'CL #	32 OMM 'CL #	33 6-1G1 'CL	34 15P1 'CL #	35 FK-001 'CL #	36 VHV1 'CL	37 VH6'CL	38 Ab26 'CL	39 1-9II 'CL	40 12G-1 'CL	41 71-2 'CL	42 71-4 'CL
-20	MET	MET	MET	MET	MET		MET		MET	MET	MET	MET		MET	MET	MET	MET	MET	MET	MET	MET
-19	ASP	ASP	ASP	GLY	GLY		GLY		GLY	ASP	LYS	SER		SER	SER	SER	LYS	LYS	LYS	LYS	LYS
-18	TRP	TRP	TRP	SER	SER		SER		SER	ARG	HIS	VAL		VAL	VAL	VAL	HIS	HIS	HIS	HIS	HIS
-17	THR	THR	ILE	THR	THR		THR		THR	THR	LEU	SER		SER	SER	SER	LEU	LEU	LEU	LEU	LEU
-16	TRP	TRP	TRP	ALA	ALA		ALA		ALA	LEU	TRP	PHE		PHE	PHE	PHE	TRP	TRP	TRP	TRP	TRP
-15	---	SER	ARG	ILE	ILE		ILE		ILE	THR	PHE	LEU		LEU	LEU	LEU	PHE	PHE	PHE	PHE	PHE
-14	ILE	ILE	ILE	LEU	LEU		LEU		LEU	PHE	PHE	ILE		ILE	ILE	ILE	PHE	PHE	PHE	PHE	PHE
-13	LEU	LEU	LEU	ALA	ALA		ALA		ALA	LEU	LEU	PHE		PHE	PHE	PHE	LEU	LEU	LEU	LEU	LEU
-12	PHE	PHE	PHE	LEU	LEU		LEU		LEU	PHE	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-11	---	---	---	---	---		---		---	---	---	PRO		PRO	PRO	---	---	---	---	---	---
-10	LEU	LEU	LEU	LEU	LEU		LEU		LEU	VAL	LEU	VAL		VAL	VAL	PRO	LEU	LEU	LEU	LEU	LEU
-9	VAL	VAL	VAL	LEU	LEU		LEU		LEU	VAL	VAL	LEU		LEU	LEU	VAL	VAL	VAL	VAL	VAL	VAL
-8	ALA	ALA	GLY	ALA	ALA		ALA		ALA	ALA	ALA	GLY		GLY	GLY	LEU	ALA	ALA	ALA	ALA	ALA
-7	ALA	ALA	ALA	ILE	VAL		VAL		VAL	ALA	ALA	LEU		LEU	LEU	GLY	ALA	ALA	ALA	ALA	ALA
-6	ALA	ALA	ALA	LEU	LEU		LEU		LEU	ALA	PRO	PRO		PRO	PRO	LEU	PRO	PRO	PRO	PRO	PRO
-5	THR	THR	THR	GLN	GLN		GLN		GLN	THR	ARG	TRP		TRP	TRP	PRO	ARG	ARG	ARG	ARG	ARG
-4	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	TRP	GLY		GLY	GLY	CYS		TRP	TRP	TRP	TRP
-3	VAL	ALA	ALA	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-2	HIS	HIS	HIS	CYS	CYS	CYS	CYS	CYS	CYS	GLN	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-1	SER	SER	SER	ALA	ALA	ALA	ALA	ALA	ALA	THR	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER

	43 C6B2 'CL	44 58P2 'CL #	45 SUP-T1 VH-JA 'CL #	46 11 'CL	47 79 'CL	48 Pag-1 'CL #	49 HuVNP 'CL #	50 HuVH LYS 'CL	51 HuVH CAMP 'CL	52 HIG1 'CL	53 T52 'CL	54 2-1 'CL	55 58 'CL	56 Fog-B 'CL #	57 6H- 3C4 'CL #	58 Ly66 'CL	59 DR 12910 -2F8 'CL #	60 CE-1 'CL #	61 JBL2 'CL #	62 LAMBDA -VH26 'CL #	63 4G12 'CL #	64 30P1 'CL #	65 vh 26c 'CL #
-20	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET		MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET
-19	LYS	LYS	LYS	LYS	LYS	LYS	GLY	GLY	GLY	LYS		LYS	LYS	LYS	LYS	LYS	ASN	ASP	LYS	GLU	GLU	GLU	GLU
-18	HIS	HIS	HIS	HIS	HIS	HIS	TRP	TRP	TRP	HIS		HIS	HIS	HIS	HIS	LEU	ILE	HIS	PHE	PHE	PHE	PHE	PHE
-17	LEU	LEU	LEU	LEU	LEU	LEU	SER	SER	SER	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	GLY	GLY	GLY	GLY
-16	TRP	TRP	TRP	TRP	TRP	TRP	CYS	CYS	CYS	TRP		TRP	TRP	TRP	TRP	CYS	CYS	TRP	LEU	LEU	LEU	LEU	LEU
-15	PHE	PHE	PHE	PHE	PHE	PHE	ILE	ILE	ILE	PHE		PHE	PHE	PHE	PHE	PHE	CYS	SER	PHE	SER	SER	SER	SER
-14	PHE	PHE	PHE	PHE	PHE	PHE	ILE	ILE	ILE	LEU		PHE	PHE	PHE	PHE	LEU	THR	PHE	TRP	TRP	TRP	TRP	TRP
-13	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE	PHE	PHE
-12	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	---	---	---	---	---
-11	---	---	---	---	---	---	---	---	---	TRP		---	---	---	---	---	---	---	---	---	---	---	---
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	CYS		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LSU	LEU	
-9	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	GLN		VAL	VAL	VAL	VAL	VAL	LEU	LEU	VAL	VAL	VAL	VAL	VAL
-8	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	LEU		ALA	ALA	ALA	ALA	ALA	THR	THR	ALA	ALA	ALA	ALA	ALA
-7	ALA	ALA	ALA	ALA	ALA	ALA	THR	THR	THR	PRO		ALA	ALA	ALA	ALA	ALA	ILE	VAL	ALA	ILE	ILE	ILE	ILE
-6	PRO	PRO	PRO	PRO	PRO	PRO	ALA	ALA	ALA	ASP		PRO	PRO	PRO	PRO	PRO	PRO	PRO	LEU	LEU	LEU	LEU	LEU
-5	ARG	ARG	ARG	ARG	ARG	ARG	THR	THR	THR	VAL		ARG	ARG	ARG	ARG	ARG	SER	SER	ARG	LYS	LYS	LYS	LYS
-4	TRP	TRP	TRP	TRP	TRP	TRP	GLY	GLY	GLY	ARG		TRP	TRP	TRP	TRP	TRP	TRP	TRP	GLY	GLY	GLY	GLY	GLY
-3	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-2	LEU	LEU	LEU	LEU	LEU	LEU	HIS	HIS	HIS	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LYS	LEU	GLN	GLN	GLN	GLN	GLN
-1	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	CYS	CYS	CYS	CYS	CYS

	66 Ab25 'CL	67 RF-KL1 'CL	68 Ab21 'CL	69 VH38 C1.10 'CL	70 H11 'CL	71 12-2 'CL	72 13-2 'CL	73 38P1 'CL #	74 Ab18 'CL	75 GF4 /1.1 'CL	76 8-1B 'CL	77 v65-4 'CL	78 9-1 'CL	79 4B4 'CL	80 3D6 'CL	81 1-91 'CL	82 60P2 'CL #	83 63P1 'CL #	84 v65-2 'CL	85 22-2B 'CL	86 56P1 'CL #	87 1-9III 'CL	88 2P1 'CL #
-20	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET			MET	MET	MET	MET	MET
-19	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU			GLU	GLU	GLU	GLU	GLU
-18	PHE	PHE	PHE	PHE	PRE	PRE	LEU	LEU	PHE	PHE	PHE	PHE	PHE	PHE	LEU	PHE			PHE	PHE	PHE	PHE	PHE
-17	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY			VAL	GLY	GLY	GLY	GLY
-16	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU
-15	SER	SER	ARG	SER	SER	SER	SER	SER	SER	SER	SER	ASN	SER	GLU	SER	SER			SER	SER	SER	SER	SER
-14	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	LEU	TRP	TRP			TRP	TRP	TRP	TRP	TRP
-13	LEU	LEU	LEU	LEU	VAL	VAL	VAL	VAL	LEU	LEU	VAL	VAL	ILE	ILE	ILE	LEU			VAL	VAL	VAL	VAL	VAL
-12	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE			PHE	PHE	PHE	PHE	PHE
-11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			---	---	---	---	---
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU
-9	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	ALA	ALA	LEU	VAL			VAL	VAL	VAL	VAL	VAL
-8	ALA	ALA	ALA	ALA	ALA	VAL	ALA	ALA	ALA	ALA	ALA	ALA	ILE	ILE	ILE	ILE			ALA	ALA	ALA	ALA	ALA
-7	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE			ILE	ILE	LEU	LEU	LEU
-6	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	ILE	LEU	LEU	LEU
-5	LYS	LYS	LYS	LYS	LYS	GLN	GLU	GLU	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS			LYS	LYS	ARG	ARG	ARG
-4	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ALA	VAL	VAL	VAL	LEU			GLY	GLY	GLY	GLY	GLY
-3	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	ALA	VAL	VAL	VAL	VAL			VAL	VAL	VAL	VAL	VAL
-2	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN
-1	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS

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'SON,C.B. (1989) CELL,56,

17,3072-3076.
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\SES OF VARYING LENGTHS.
OR WITHIN POSITION -4.
:FINE THE JOINING AS
:STED BELOW:

:CHARIDE.

SIGNAL PEPTIDES OF HUMAN HEAVY CHAINS (cont'd)

	89 KIM46H 'CL #	90 FL2-2 'CL #	91 RF-SJ2 'CL #	92 RF-TS2 'CL #	93 RF-SJ1 'CL #	94 HN.14 'CL #	95 333 'CL #	96 1B11 'CL #	97 112 'CL #	98 VH10.7 'CL #	99 K6H6 'CL #	100 K4B8 'CL #	101 K5B8 'CL #	102 K5G5 'CL #	103 K5C7 'CL #	104 K6F5 'CL #	105 Ly47 'CL #	106 Ly91 'CL #	107 CE- 114 'CL	108 V201 'CL
-20			MET	MET	MET	MET	MET		MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	
-19			GLU	GLU	GLU	GLU	GLU		GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	ASP	ASP	ASP	
-18		PHE	PHE	PHE	PHE	PHE	LEU		LEU	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	CYS	
-17		GLY	GLY	GLY	GLY	GLY	GLY		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	THR	
-16		LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	TRP	
-15		SER	SER	SER	SER	SER	THR		THR	SER	SER	SER	SER	SER	SER	SER	ASN	SER	GLY	
-14	TRP	TRP	TRP	TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP	ILE	ILE
-13	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	ILE	ILE	ILE	ILE	ILE	ILE	VAL	VAL	LEU	ARG
-12	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
-11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-9	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-8	ALA	ALA	ALA	ALA	ALA	ALA	ALA	THR	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	GLY	ALA	ALA
-7	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	ILE	ILE	ILE	ILE	ILE	ILE	PHE	ILE	ALA	ALA
-6	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	ALA	ALA
-5	ARG	ARG	ARG	ARG	ARG	ARG	LYS	LYS	LYS	ARG	LYS	LYS	LYS	LYS	LYS	LYS	LYS	LYS	THR	THR
-4	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ASP	GLY
-3	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	MET	VAL	VAL	VAL
-2	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	HIS	GLN	GLN	HIS	HIS
-1	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	SER	SER

	# OF SEQUENCES	# OF AMINO ACIDS	OCCURRENCES OF MOST COMMON AMINO ACID	VARIABILITY
-20	94	1	94 (MET)	1.
-19	95	6	38 (GLU)	15.
-18	96	9	36 (PHE)	24.
-17	96	6	40 (GLY)	14.
-16	96	6	42 (LEU)	14.
-15	95	10	41 (SER)	23.
-14	98	6	41 (TRP)	14.
-13	99	6	55 (LEU)	11.
-12	99	3	67 (PHE)	4.4
-11	4	2	3 (PRO)	2.7
-10	99	4	86 (LEU)	4.6
-9	99	4	83 (VAL)	4.8
-8	99	5	88 (ALA)	5.6
-7	99	8	39 (ALA)	20.
-6	99	5	46 (LEU)	11.
-5	100	10	30 (LYS)	33.
-4	101	6	77 (GLY)	7.9
-3	105	3	88 (VAL)	3.6
-2	107	5	53 (GLN)	10.
-1	108	4	56 (SER)	7.7

PRECURSOR OF:

1) 21-2'CL: HUMAN HEAVY CHAINS SUB
2) 3-1'CL: HUMAN HEAVY CHAINS SUBG
3) 1-92'CL: HUMAN HEAVY CHAINS SUB
4) V35'CL: HUMAN HEAVY CHAINS SUBG
5) EG3'CL: HUMAN HEAVY CHAINS SUBG
6) E3-10'CL: HUMAN HEAVY CHAINS SU
7) WIL2'CL: HUMAN HEAVY CHAINS SUB
8) LS2'CL: HUMAN HEAVY CHAINS SUBG
9) LS5'CL: HUMAN HEAVY CHAINS SUBG
10) LS1'CL: HUMAN HEAVY CHAINS SUBG
11) LS4'CL: HUMAN HEAVY CHAINS SUBG
12) RF-TS3'CL: HUMAN HEAVY CHAINS S
13) 51P1'CL: HUMAN HEAVY CHAINS SUI
14) hv1263'CL: HUMAN HEAVY CHAINS
15) 783c'CL: HUMAN HEAVY CHAINS SU
16) EV1-15'CL: HUMAN HEAVY CHAINS
17) X17115'CL: HUMAN HEAVY CHAINS
18) AND'CL: HUMAN HEAVY CHAINS SUB
19) NEI'CL: HUMAN HEAVY CHAINS SUI
20) RF-TS1'CL: HUMAN HEAVY CHAINS
21) HP1'CL: HUMAN HEAVY CHAINS SUI
22) ND'CL: HUMAN HEAVY CHAINS SUBG
23) 1B9/F2'CL: HUMAN HEAVY CHAINS
24) 71-5'CL: HUMAN HEAVY CHAINS S
25) VH251'CL: HUMAN HEAVY CHAINS
26) 5-1R1'CL: HUMAN HEAVY CHAINS
27) VhAU'CL: HUMAN HEAVY CHAINS S
28) WS1'CL: HUMAN HEAVY CHAINS SU
29) Vh383ex'CL: HUMAN HEAVY CHAIN
30) 5-2R1'CL: HUMAN HEAVY CHAINS
31) lambda IGD-1'CL: HUMAN HEAVY
32) OMM'CL: HUMAN HEAVY CHAINS S
33) 6-1G1'CL: HUMAN HEAVY CHAINS
34) 15P1'CL: HUMAN HEAVY CHAINS
35) FR-001'CL: HUMAN HEAVY CHAIN
36) VHVI'CL: HUMAN HEAVY CHAINS
37) VH6'CL: HUMAN HEAVY CHAINS S
38) Ab26'CL: HUMAN HEAVY CHAINS
39) 1-9II'CL: HUMAN HEAVY CHAINS
40) 12G-1'CL: HUMAN HEAVY CHAINS
41) 71-2'CL: HUMAN HEAVY CHAINS.
42) 71-4'CL: HUMAN HEAVY CHAINS
43) C6B2'CL: HUMAN HEAVY CHAINS
44) 58P2'CL: HUMAN HEAVY CHAINS
45) SUP-T1 VH-JA'CL: HUMAN HEAV
46) 11'CL: HUMAN HEAVY CHAINS S
47) 79'CL: HUMAN HEAVY CHAINS S
48) Pag-1'CL: HUMAN HEAVY CHAIN
49) HuVNP'CL: HUMAN HEAVY CHAIN
50) HuVHLYS'CL: HUMAN HEAVY CHA
51) HuVHCAMP'CL: HUMAN HEAVY CH
52) HIG1'CL: HUMAN HEAVY CHAINS
53) TS2'CL: HUMAN HEAVY CHAINS
54) 2-1'CL: HUMAN HEAVY CHAINS
55) 58'CL: HUMAN HEAVY CHAINS S
56) Fog-B'CL: HUMAN HEAVY CHAI
57) 6H-3C4'CL: HUMAN HEAVY CHA
58) Ly66'CL: HUMAN HEAVY CHAIN
59) DR12910-2F8'CL: HUMAN HEAV
60) CE-1 'CL: HUMAN HEAVY CHAI
61) JBL2'CL: HUMAN HEAVY CHAIN
62) LAMBDA-VH26'CL: HUMAN HEAV
63) 4G12'CL: HUMAN HEAVY CHAIN
64) 30P1'CL: HUMAN HEAVY CHAIN
65) vh26c'CL: HUMAN HEAVY CHAI
66) Ab25'CL: HUMAN HEAVY CHAIN
67) RF-KL1'CL: HUMAN HEAVY CHA
68) Ab21'CL: HUMAN HEAVY CHAIN
69) Vh38C1.10'CL: HUMAN HEAVY
70) H11'CL: HUMAN HEAVY CHAINS
71) 12-2'CL: HUMAN HEAVY CHAIN
72) 13-2'CL: HUMAN HEAVY CHAIN
73) 38P1'CL: HUMAN HEAVY CHAIN
74) Ab18'CL: HUMAN HEAVY CHAIN
75) GF4/1.1'CL: HUMAN HEAVY CH
76) 8-1B'CL: HUMAN HEAVY CHAIN
77) v65-4'CL: HUMAN HEAVY CHA
78) 9-1'CL: HUMAN HEAVY CHAINS
79) 4B4'CL: HUMAN HEAVY CHAIN
80) 3D6'CL: HUMAN HEAVY CHAIN
81) 1-91'CL: HUMAN HEAVY CHAI
82) 60P2'CL: HUMAN HEAVY CHAI
83) 63P1'CL: HUMAN HEAVY CHAI
84) v65-2'CL: HUMAN HEAVY CHA
85) 22-2B'CL: HUMAN HEAVY CHA
86) 56P1'CL: HUMAN HEAVY CHAI
87) 1-9III'CL: HUMAN HEAVY CH
88) 2P1'CL: HUMAN HEAVY CHAIN
89) KIM46H'CL: HUMAN HEAVY CH
90) FL2-2'CL: HUMAN HEAVY CHA
91) RF-SJ2'CL: HUMAN HEAVY CH
92) RF-TS2'CL: HUMAN HEAVY CH
93) RF-SJ1'CL: HUMAN HEAVY CH
94) HN.14'CL: HUMAN HEAVY CHA
95) 333'CL: HUMAN HEAVY CHAIN
96) 1B11'CL: HUMAN HEAVY CHA
97) 112'CL: HUMAN HEAVY CHAIN
98) VH10.7'CL: HUMAN HEAVY C
99) K6H6'CL: HUMAN HEAVY CHA
100) K4B8'CL: HUMAN HEAVY CHA
101) K5B8'CL: HUMAN HEAVY CHA
102) K5G5'CL: HUMAN HEAVY CHA
103) K5C7'CL: HUMAN HEAVY CHA

106	107	108
Ly91	CE-	V201
'CL	114	'CL
#	'CL	
MET	MET	
ASP	ASP	
PHE	CYS	
GLY	THR	
LEU	TRP	
SER	GLY	
TRP	ILE	ILE
VAL	LEU	ARG
PHE	PHE	PHE
LEU	LEU	LEU
VAL	VAL	VAL
GLY	ALA	ALA
ILE	ALA	ALA
LEU	ALA	ALA
LYS	THR	THR
GLY	ASP	GLY
MET	VAL	VAL
GLN	HIS	HIS
CYS	SER	SER

PRECURSOR OF:

1) 21-2'CL: HUMAN HEAVY CHAINS SUBGROUP I
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9) LS5'CL: HUMAN HEAVY CHAINS SUBGROUP I
10) LS1'CL: HUMAN HEAVY CHAINS SUBGROUP I
11) LS4'CL: HUMAN HEAVY CHAINS SUBGROUP I
12) RF-T83'CL: HUMAN HEAVY CHAINS SUBGROUP I
13) 51P1'CL: HUMAN HEAVY CHAINS SUBGROUP I
14) hv1263'CL: HUMAN HEAVY CHAINS SUBGROUP I
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33) 6-1G1'CL: HUMAN HEAVY CHAINS SUBGROUP II
34) 15P1'CL: HUMAN HEAVY CHAINS SUBGROUP II
35) FK-001'CL: HUMAN HEAVY CHAINS SUBGROUP II
36) VHVI'CL: HUMAN HEAVY CHAINS SUBGROUP II
37) VH6'CL: HUMAN HEAVY CHAINS SUBGROUP II
38) Ab26'CL: HUMAN HEAVY CHAINS SUBGROUP II
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50) HuVHLYS'CL: HUMAN HEAVY CHAINS SUBGROUP II
51) HuVECAMP'CL: HUMAN HEAVY CHAINS SUBGROUP II
52) HIG1'CL: HUMAN HEAVY CHAINS SUBGROUP II
53) TS2'CL: HUMAN HEAVY CHAINS SUBGROUP II
54) 2-1'CL: HUMAN HEAVY CHAINS SUBGROUP II
55) 58'CL: HUMAN HEAVY CHAINS SUBGROUP II
56) Fog-B'CL: HUMAN HEAVY CHAINS SUBGROUP II
57) 6H-3C4'CL: HUMAN HEAVY CHAINS SUBGROUP II
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60) CE-1 'CL: HUMAN HEAVY CHAINS SUBGROUP II
61) JBL2'CL: HUMAN HEAVY CHAINS SUBGROUP II
62) LAMBDA-VH26'CL: HUMAN HEAVY CHAINS SUBGROUP III
63) 4G12'CL: HUMAN HEAVY CHAINS SUBGROUP III
64) 30P1'CL: HUMAN HEAVY CHAINS SUBGROUP III
65) Vh26c'CL: HUMAN HEAVY CHAINS SUBGROUP III
66) Ab25'CL: HUMAN HEAVY CHAINS SUBGROUP III
67) RF-KL1'CL: HUMAN HEAVY CHAINS SUBGROUP III
68) Ab21'CL: HUMAN HEAVY CHAINS SUBGROUP III
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80) 3D6'CL: HUMAN HEAVY CHAINS SUBGROUP III
81) 1-91'CL: HUMAN HEAVY CHAINS SUBGROUP III
82) 60P2'CL: HUMAN HEAVY CHAINS SUBGROUP III
83) 63P1'CL: HUMAN HEAVY CHAINS SUBGROUP III
84) v65-2'CL: HUMAN HEAVY CHAINS SUBGROUP III
85) 22-2B'CL: HUMAN HEAVY CHAINS SUBGROUP III
86) 56P1'CL: HUMAN HEAVY CHAINS SUBGROUP III
87) 1-9III'CL: HUMAN HEAVY CHAINS SUBGROUP III
88) 2P1'CL: HUMAN HEAVY CHAINS SUBGROUP III
89) KIM46H'CL: HUMAN HEAVY CHAINS SUBGROUP III
90) FL2-2'CL: HUMAN HEAVY CHAINS SUBGROUP III
91) RF-8J2'CL: HUMAN HEAVY CHAINS SUBGROUP III
92) RF-T82'CL: HUMAN HEAVY CHAINS SUBGROUP III
93) RF-8J1'CL: HUMAN HEAVY CHAINS SUBGROUP III
94) HN.14'CL: HUMAN HEAVY CHAINS SUBGROUP III
95) 333'CL: HUMAN HEAVY CHAINS SUBGROUP III
96) 1B11'CL: HUMAN HEAVY CHAINS SUBGROUP III
97) 112'CL: HUMAN HEAVY CHAINS SUBGROUP III
98) VH10.7'CL: HUMAN HEAVY CHAINS SUBGROUP III
99) K6H6'CL: HUMAN HEAVY CHAINS SUBGROUP III
100) K4B8'CL: HUMAN HEAVY CHAINS SUBGROUP III
101) K5B8'CL: HUMAN HEAVY CHAINS SUBGROUP III
102) K5G5'CL: HUMAN HEAVY CHAINS SUBGROUP III
103) K5C7'CL: HUMAN HEAVY CHAINS SUBGROUP III

PRECURSOR OF: (cont'd)

104) **K6F5'CL**: HUMAN HEAVY CHAINS SUBGROUP III
105) **Ly47'CL**: HUMAN HEAVY CHAINS SUBGROUP III
106) **Ly91'CL**: HUMAN HEAVY CHAINS SUBGROUP III

REFERENCE: SIGNAL PEPTIDES OF HUMAN HEAVY CHAINS

1) **21-2'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
2) **3-1'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT,F.W. (1988) EMBO J.,7,727-738.
3) **1-92'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
4) **V35'CL**: MATSUDA,F.,LEE,K.H.,NAKAI,S.,SATO,T.,KODAIRA,M.,ZONG,S.Q.,OHNO,H.,FUKUHARA,S. & HONJO,T. (1988) EMBO J.,7, 1047-1051.
5) **HG3'CL**: RECHAVI,G.,RAM.,D.,GLAZER,L.,ZAKUT,R. & GIVOL,D. (1983) PROC.NAT.ACAD.SCI.USA,80,855-859. (CHECKED BY AUTHOR 01/04/83)
6) **E3-10'CL**: KODAIRA,M.,KINASHI,T.,UMEMURA,I.,MATSUDA,F.,NOMA,T.,ONO,Y. & HONJO,T. (1986) J.MOL.BIOL.,190,529-541.
7) **WIL2'CL**: KIPPS,T.J.,TOMHAVE,E.,PRATT,L.F.,DUFFY,S.,CHEN,P.P. & CARSON,D.A. (1989) PROC.NATL.ACAD.SCI.USA,86,5913-5917.
8) **LS2'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
9) **LS5'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
10) **LS1'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
11) **LS4'CL**: SILBERSTEIN,L.E.,LITWIN,S. & CARMACK,C.E. (1989) J.EXP.MED.,169,1631-1643.
12) **RF-TS3'CL**: PASCUAL,V.,RANDEN,I.,THOMPSON,K.,SIOUD,M.FORRE,O.,NATVIG,J. & CAPRA,J.D. (1990) J.CLIN.INVEST.,86,1320-1328.
13) **51P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793; CHEN,P.P.,LIU,M.-F.,GLASS,C.A., SINHA,S.,KIPPS,T.J. & CARSON,D.A. (1989) ARTHRITIS & RHEUMATISM,32,72-76.
14) **hv1263'CL**: CHEN,P.P.,LIU,M.-F.,GLASS,C.A.,SINHA,S.,KIPPS,T.J. & CARSON,D.A. (1989) ARTHRITIS & RHEUMATISM,32,72-76.
15) **783c'CL**: CHEN,P.P.,LIU,M.-F.,GLASS,C.A.,SINHA,S.,KIPPS,T.J. & CARSON,D.A. (1989) ARTHRITIS & RHEUMATISM,32,72-76; KIPPS, T.J.,TOMHAVE,E.,PRATT,L.F.,DUFFY,S.,CHEN,P.P. & CARSON,D.A. (1989) PROC.NATL.ACAD.SCI.USA,86,5913-5917.
16) **EV1-15'CL**: NEWKIRK,M.M.,GRAM,H.,HEINRICH,G.F.,OSTBERG,L.,CAPRA,J.D. & WASSERMAN,R.L. (1988) J.CLIN.INVEST.,81,1511-1518.
17) **X17115'CL**: FRIEDLANDER,R.M.,NUSSENZWEIG,M.C. & LEDER,P. (1990) NUCL.ACIDS RES.,18,4278.
18) **AND'CL**: KIPPS,T.J.,TOMHAVE,E.,PRATT,L.F.,DUFFY,S.,CHEN,P.P. & CARSON,D.A. (1989) PROC.NATL.ACAD.SCI.USA,86,5913-5917.
19) **NEI'CL**: KIPPS,T.J.,TOMHAVE,E.,PRATT,L.F.,DUFFY,S.,CHEN,P.P. & CARSON,D.A. (1989) PROC.NATL.ACAD.SCI.USA,86,5913-5917.
20) **RF-TS1'CL**: PASCUAL,V.,RANDEN,I.,THOMPSON,K.,SIOUD,M.FORRE,O.,NATVIG,J. & CAPRA,J.D. (1990) J.CLIN.INVEST.,86,1320-1328.
21) **HP1'CL**: SHEN,A.,HUMPHRIES,C.,TUCKER,P. & BLATTNER,F. (1987) PROC.NATL.ACAD.SCI.USA,84,8563-8567.
22) **ND'CL**: KENTEN,J.H.,MOLGAARD,H.V.,HOUGHTON,M.,DERBYSHIRE,R.B.,VINEY,J.,BELL,L.O. & GOULD,H.J. (1982) PROC.NAT.ACAD.SCI.USA,79,6661-6665.
23) **1B9/F2'CL**: CARROLL,W.L.,YU,M.,LINK,M.P. & KORSMEYER,S.J. (1989) J.IMMUNOL.,143,692-698.
24) **71-5'CL**: KODAIRA,M.,KINASHI,T.,UMEMURA,I.,MATSUDA,F.,NOMA,T.,ONO,Y. & HONJO,T. (1986) J.MOL.BIOL.,190,529-541.
25) **VH251'CL**: HUMPHRIES,C.G.,SHEN,A.,KUZIEL,W.A.,CAPRA,J.D.,BLATTNER,F.R. & TUCKER,P.W. (1988) NATURE,331,446-449.
26) **5-1R1'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
27) **VhAU'CL**: VAN DER HEIJDEN,R.W.J.,BUNSCHOTEN,H.,PASCUAL,V.,UYTDEHAAG,F.G.C.M.,OSTERHAUS,A.D.M.E. & CAPRA,J.D. (1990) J.IMMUNOL.,144,2835-2839.
28) **WS1'CL**: SHEN,A.,HUMPHRIES,C.,TUCKER,P. & BLATTNER,F. (1987) PROC.NATL.ACAD.SCI.USA,84,8563-8567.
29) **Vh383ex'CL**: VAN DER HEIJDEN,R.W.J.,BUNSCHOTEN,H.,PASCUAL,V.,UYTDEHAAG,F.G.C.M.,OSTERHAUS,A.D.M.E. & CAPRA,J.D. (1990) J.IMMUNOL.,144,2835-2839.
30) **5-2R1'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
31) **lambda IGD-1'CL**: YASUI,H.,AKAHORI,Y.,HIRANO,M.,YAMADA,K. & KUROSAWA,Y. (1989) EUR.J.IMMUNOL.,19,1399-1403.
32) **OMM'CL**: ALEXANDER,A.,STEINMETZ,M.,BARRITAULT,D.,FRANGIONE,B.,FRANKLIN,E.C.,HOOD,L. & BUXBAUM,J.N. (1982) PROC.NAT.ACAD.SCI.USA,79,3260-3264. (CHECKED BY AUTHOR 06/17/83)
33) **6-1G1'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
34) **15P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
35) **FK-001'CL**: NAKATANI,T.,NOMURA,N.,HORIGOME,K.,OHTSUKA,H. & NOGUCHI,H. (1989) BIO/TECH.,7,805-810.
36) **VHVI'CL**: BULDWELA,L. & RABBITTS,T.H. (1988) EUR.J.IMMUNOL.,18,1843-1845.
37) **VH6'CL**: SCHROEDER,H.W.,JR.,WALTER,M.A.,HOFKER,M.H.,EBENS,A.,VAN DIJK,K.W.,LIAO,L.C.,COX,D.W.,MILNER,E.C.B. & PERLMUTTER, R.M. (1988) PROC.NATL.ACAD.SCI.USA,85,8196-8200.
38) **Ab26'CL**: SANZ,I.,CASALI,P.,THOMAS,J.W.,NOTKINS,A.L. & CAPRA,J.D. (1989) J.IMMUNOL.,142,4054-4061.
39) **1-9II'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
40) **12G-1'CL**: LEE,K.H.,MATSUDA,F.,KINASHI,T.,KODAIRA,M. & HONJO,T. (1987) J.MOL.BIOL.,195,761-768.
41) **71-2'CL**: KODAIRA,M.,KINASHI,T.,UMEMURA,I.,MATSUDA,F.,NOMA,T.,ONO,Y. & HONJO,T. (1986) J.MOL.BIOL.,190,529-541.
42) **71-4'CL**: KODAIRA,M.,KINASHI,T.,UMEMURA,I.,MATSUDA,F.,NOMA,T.,ONO,Y. & HONJO,T. (1986) J.MOL.BIOL.,190,529-541.
43) **C6B2'CL**: HOCH,S. & SCHWABER,J. (1987) J.IMMUNOL.,139,1689-1693.
44) **58P2'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
45) **SUP-T1 VH-JA'CL**: BAER,R.,CHEN,K.-C.,SMITH,S.D. & RABBITTS,T.H. (1985) CELL,43,705-713; DENNY,C.T.,YOSHIKAI,Y.,MAK,T.W., SMITH,S.D.,HOLLIS,G.F. & KIRSCH,I.R. (1986) NATURE,320,549-551.
46) **11'CL**: LEE,K.H.,MATSUDA,F.,KINASHI,T.,KODAIRA,M. & HONJO,T. (1987) J.MOL.BIOL.,195,761-768.
47) **79'CL**: LEE,K.H.,MATSUDA,F.,KINASHI,T.,KODAIRA,M. & HONJO,T. (1987) J.MOL.BIOL.,195,761-768.
48) **Pag-1'CL**: HUGHES-JONES,N.C.,BYE,J.M.,BEALE,D. & COADWELL,J. (1990) BIOCHEM.J.,268,135-140.
49) **HuVNP'CL**: JONES,P.T.,DEAR,P.H.,FOOTE,J.,NEUBERGER,M.S. & WINTER,G. (1986) NATURE,321,522-525.
50) **HuVHLYS'CL**: VERHOEYEN,M., MILSTEIN,C. & WINTER,G. (1988) SCIENCE,239,1534-1536.
51) **HuVHCAMP'CL**: RIECHMANN,L.,CLARK,M.,WALDMANN,H. & WINTER,G. (1988) NATURE,332,323-327.
52) **HIG1'CL**: KUDO,A.,ISHIHARA,T.,NISHIMURA,Y. & WATANABE,T. (1985) GENE,33,181-189. (CHECKED BY AUTHOR 10/01/85)
53) **TS2'CL**: SHEN,A.,HUMPHRIES,C.,TUCKER,P. & BLATTNER,F. (1987) PROC.NATL.ACAD.SCI.USA,84,8563-8567.
54) **2-1'CL**: LEE,K.H.,MATSUDA,F.,KINASHI,T.,KODAIRA,M. & HONJO,T. (1987) J.MOL.BIOL.,195,761-768.
55) **58'CL**: LEE,K.H.,MATSUDA,F.,KINASHI,T.,KODAIRA,M. & HONJO,T. (1987) J.MOL.BIOL.,195,761-768.
56) **Fog-8'CL**: HUGHES-JONES,N.C.,BYE,J.M.,BEALE,D. & COADWELL,J. (1990) BIOCHEM.J.,268,135-140.
57) **6H-3C4'CL**: KOMORI,S.,YAMASAKI,N.,SHIGETA,M.,ISOJIMA,S. & WATANABE,T. (1988) CLIN.EXP.IMMUNOL.,71,508-516.
58) **Ly66'CL**: COGNE,M.,MOUNIR,S.,MAHDI,T.,PREUD'HOMME,J.L.,NAU,F. & GUGLIELMI,P. (1990) MOL.IMMUNOL.,27,929-934.
59) **DR12910-2F8'CL**: LARRICK,J.W.,DANIELSSON,L.,BRENNER,C.A.,WALLACE,E.F.,ABRAHAMSON,M.,FRY,K.E. & BORREBAECK,C.A.K. (1989) BIO/TECH.,7,934-938.
60) **CE-1 'CL**: TAKAHASHI,N.,NOMA,T. & HONJO,T. (1984) PROC.NAT.ACAD.SCI.USA,81,5194-5198.
61) **JBL2'CL**: COGNE,M.,MOUNIR,S.,PREUD'HOMME,J.-L.,NAU,F. & GUGLIELMI,P. (1988) EUR.J.IMMUNOL.,18,1485-1489.
62) **LAMBDA-VH26'CL**: RABBITTS,T.H.,BENTLEY,D.L.,DUNNICK,W.,FORSTER,A.,MATTHYSSENS,G. & MILSTEIN,C. (1980) COLD SPRING HARB.SYMP.QUANTI.BIOL.,45,867-878. (CHECKED BY AUTHOR 12/09/80)
63) **4G12'CL**: KISHIMOTO,T.,OKAJIMA,H.,OKUMOTO,T. & TANIGUCHI,M. (1989) NUCL.ACIDS RES.,17,4385.
64) **30P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793; CHEN,P.P.,LIU,M.-F.,SINHA,S. & CARSON,D.A. (1988) ARTH.RHEUM.,31,1429-1431.
65) **vh26c'CL**: CHEN,P.P.,LIU,M.-F.,SINHA,S. & CARSON,D.A. (1988) ARTH.RHEUM.,31,1429-1431.
66) **Ab25'CL**: SANZ,I.,CASALI,P.,THOMAS,J.W.,NOTKINS,A.L. & CAPRA,J.D. (1989) J.IMMUNOL.,142,4054-4061.
67) **RF-KL1'CL**: PASCUAL,V.,RANDEN,I.,THOMPSON,K.,SIOUD,M.FORRE,O.,NATVIG,J. & CAPRA,J.D. (1990) J.CLIN.INVEST.,86,1320-1328.
68) **Ab21'CL**: SANZ,I.,CASALI,P.,THOMAS,J.W.,NOTKINS,A.L. & CAPRA,J.D. (1989) J.IMMUNOL.,142,4054-4061.
69) **Vh38C1.10'CL**: MEEKER,T.C.,GRIMALDI,J.,O'ROURKE,R.,LOEB,J.JULIUSSON,G. & EINHORN,S. (1988) J.IMMOL.,141,3994-3998.
70) **H11'CL**: RECHAVI,G.,BIENZ,B.,RAM,D.,BEN-NERIAH,Y.,COHEN,J.B.,ZAKUT,R. & GIVOL,D. (1982) PROC.NAT.ACAD.SCI.USA,79, 4405-4409.
71) **12-2'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
72) **13-2'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
73) **38P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
74) **Ab18'CL**: SANZ,I.,CASALI,P.,THOMAS,J.W.,NOTKINS,A.L. & CAPRA,J.D. (1989) J.IMMUNOL.,142,4054-4061.
75) **GF4/1.1'CL**: GILLIES,S.D.,DORAI,H.,WESOLOWSKI,J.,MAJEAU,G.,YOUNG,D.,BOYD,J.,GARDNER,J. & JAMES,K. (1989) BIO/TECH.,7, 799-804.
76) **8-1B'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
77) **v65-4'CL**: MATSUDA,F.,SHIN,E.K.,HIRABAYASHI,Y.,NAGAOKA,H.,YOSHIDA,M.C.,ZONG,S.Q. & HONJO,T. (1990) EMBO J.,9,2501-2506.
78) **9-1'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT,F.W. (1988) EMBO J.,7,727-738.
79) **4B4'CL**: SANZ,I.,DANG,H.,TAKEI,M.,TALAL,N. & CAPRA,J.D. (1989) J.IMMUNOL.,142,883-887.

REFERENCE: SIGNAL PEP

80) **3D6'CL**: FELGENHAUER,I
81) **1-91'CL**: BERMAN,J.E., F.W. (1988) E
82) **60P2'CL**: SCHROEDER,H
83) **63P1'CL**: SCHROEDER,H
84) **v65-2'CL**: MATSUDA,F.
85) **22-2B'CL**: BERMAN,J.E F.W. (1988)
86) **56P1'CL**: SCHROEDER,H
87) **1-9III'CL**: BERMAN,J F.W. (1988)
88) **2P1'CL**: SCHROEDER,H
89) **KIM46B'CL**: CAIRNS,E
90) **FL2-2'CL**: NICKERSON
91) **RF-SJ2'CL**: PASCUAL,
92) **RF-TS2'CL**: PASCUAL,
93) **RF-SJ1'CL**: PASCUAL,
94) **HN.14'CL**: DESAI,R.. 35-41.
95) **333'CL**: CLEARY,M.L 10/31/86)
96) **1B11'CL**: CLEARY,M. 10/31/86)
97) **112'CL**: CLEARY,M.L 10/31/86)
98) **VH10.7'CL**: WHITE,M
99) **K6H6'CL**: KON,S.,LE
100) **K4B8'CL**: KON,S.,LE
101) **K5B8'CL**: KON,S.,LE
102) **K5G5'CL**: KON,S.,LE
103) **K5C7'CL**: KON,S.,LE
104) **K6F5'CL**: KON,S.,LE
105) **Ly47'CL**: COGNE,M.,
106) **Ly91'CL**: COGNE,M.,
107) **CE-114'CL**: TAKAHA
108) **V201'CL**: TAKAHASH

GENERAL NOTES: SIG

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CLONE:

LAMBDA-CH26'CL
HG3'CL
OMM'CL
H11'CL
H16BR'CL
ND'CL
MOPC141H'CL
MC101'CL
S107'CL
VH441'CL
BCL1'CL
B1-8'CL
S43'CL
186-2'CL
186-1'CL
23'CL
3'CL
102'CL
145'CL
6'CL
93G7CRI+'CL
PCH105'CL
PCH108A'CL
PCH108B'CL
PCH104'CL
PCH111'CL
MOPC21H'CL
MCPC603H'CL
V1'CL
V11'CL
V13'CL
PMU3'CL
CAIMAN'CL
VH101'CL

REFERENCE: SIGNAL PEPTIDES OF HUMAN HEAVY CHAINS (cont'd)

80) **3D6'CL**: FELGENHAUER,M.,KOHL,J. & RUKER,F. (1990) NUCL.ACIDS RES., 18,4927.
81) **1-91'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
82) **60P2'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
83) **63P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
84) **V65-2'CL**: MATSUDA,F.,SHIN,E.K.,HIRABAYASHI,Y.,NAGAOKA,H.,YOSHIDA,M.C.,ZONG,S.Q. & HONJO,T. (1990) EMBO J.,9,2501-2506.
85) **22-2B'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
86) **56P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
87) **1-9III'CL**: BERMAN,J.E.,MELLIS,S.J.,POLLOCK,R.,SMITH,C.L.,SUH,H.,HEINKE,B.,KOWAL,C.,SURTI,U.,CHESS,L.,CANTOR,C.R & ALT, F.W. (1988) EMBO J.,7,727-738.
88) **2P1'CL**: SCHROEDER,H.W.,JR.,HILLSON,J.L. & PERLMUTTER,R.M. (1987) SCIENCE,238,791-793.
89) **KIM46H'CL**: CAIRNS,E.,KWONG,P.C.,MISENER,V.,IP,P.,BELL,D.A. & SIMINOVITCH,K.A. (1989) J.IMMUNOL.,143,685-691.
90) **FL2-2'CL**: NICKERSON,K.G.,BERMAN,J.,GLICKMAN,E.,CHESS,L. & ALT,F.W. (1989) J.EXP.MED.,169,1391-1403.
91) **RF-8J2'CL**: PASCUAL,V.,RANDEN,I.,THOMPSON,K.,SIOUD,M.FORRE,O.,NATVIG,J. & CAPRA,J.D. (1990) J.CLIN.INVEST.,86,1320-1328.
92) **RF-TS2'CL**: PASCUAL,V.,RANDEN,I.,THOMPSON,K.,SIOUD,M.FORRE,O.,NATVIG,J. & CAPRA,J.D. (1990) J.CLIN.INVEST.,86,1320-1328.
93) **RF-8J1'CL**: PASCUAL,V.,RANDEN,I.,THOMPSON,K.,SIOUD,M.FORRE,O.,NATVIG,J. & CAPRA,J.D. (1990) J.CLIN.INVEST.,86,1320-1328.
94) **HN.14'CL**: DESAI,R.,SPATZ,L.,MATSUDA,T.,ILYAS,A.A.,BERMAN,J.E.,ALT,F.W.,KABAT,E.A. & LATOV,N. (1990) J.NEUROIMMUNOL.,26, 35-41.
95) **333'CL**: CLEARY,M.L.,MEEKER,T.C.,LEVY,S.,LEE,E.,TRELA,M.,SKLAR,J. & LEVY,R. (1986) CELL,44,97-106. (CHECKED BY AUTHOR 10/31/86)
96) **1B11'CL**: CLEARY,M.L.,MEEKER,T.C.,LEVY,S.,LEE,E.,TRELA,M.,SKLAR,J. & LEVY,R. (1986) CELL,44,97-106. (CHECKED BY AUTHOR 10/31/86)
97) **112'CL**: CLEARY,M.L.,MEEKER,T.C.,LEVY,S.,LEE,E.,TRELA,M.,SKLAR,J. & LEVY,R. (1986) CELL,44,97-106. (CHECKED BY AUTHOR 10/31/86)
98) **VH10.7'CL**: WHITE,M.B.,WORD,C.J.,HUMPHRIES,C.G.,BLATTNER,F.R. & TUCKER,P.W. (1990) MOL.CELL.BIOL.,10,3690-3699.
99) **K6H6'CL**: KON,S.,LEVY,S. & LEVY,R. (1987) PROC.NATL.ACAD.SCI.USA,84,5053-5057.
100) **K4B8'CL**: KON,S.,LEVY,S. & LEVY,R. (1987) PROC.NATL.ACAD.SCI.USA,84,5053-5057.
101) **K5B8'CL**: KON,S.,LEVY,S. & LEVY,R. (1987) PROC.NATL.ACAD.SCI.USA,84,5053-5057.
102) **K5G5'CL**: KON,S.,LEVY,S. & LEVY,R. (1987) PROC.NATL.ACAD.SCI.USA,84,5053-5057.
103) **K5C7'CL**: KON,S.,LEVY,S. & LEVY,R. (1987) PROC.NATL.ACAD.SCI.USA,84,5053-5057.
104) **K6F5'CL**: KON,S.,LEVY,S. & LEVY,R. (1987) PROC.NATL.ACAD.SCI.USA,84,5053-5057.
105) **Ly47'CL**: COGNE,M.,MOUNIR,S.,PREUD'HOMME,J.-L.,NAU,F. & GUGLIELMI,P. (1988) EUR.J.IMMUNOL.,18,1485-1489.
106) **Ly91'CL**: COGNE,M.,MOUNIR,S.,PREUD'HOMME,J.-L.,NAU,F. & GUGLIELMI,P. (1988) EUR.J.IMMUNOL.,18,1485-1489.
107) **CK-114'CL**: TAKAHASHI,N.,NOMA,T. & HONJO,T. (1984) PROC.NAT.ACAD.SCI.USA,81,5194-5198.
108) **V201'CL**: TAKAHASHI,N.,NOMA,T. & HONJO,T. (1984) PROC.NAT.ACAD.SCI.USA,81,5194-5198.

GENERAL NOTES: SIGNAL PEPTIDES OF HUMAN HEAVY CHAINS

THE NUCLEOTIDE SEQUENCES OF DIFFERENT CLONES CONTAIN AN INTERVENING SEQUENCE OF NONTRANSLATED BASES OF VARYING LENGTHS. THE SPLICING OUT OF THESE INTRONS COULD OCCUR BETWEEN AMINO ACID POSITIONS -5 AND -4, OR -4 AND -3, OR WITHIN POSITION -4. HOWEVER, IF THE SPLICING REQUIRES GT AT THE 5'-END AND AG AT THE 3'-END OF THE INTRON, THIS WOULD DEFINE THE JOINING AS OCCURRING WITHIN THE CODON OF AMINO ACID RESIDUE -4. THE INTRON SIZES OF DIFFERENT SEQUENCES ARE LISTED BELOW:

CLONE:	SOURCE:	INTRON SIZE:
LAMBDA-CH26'CL	HUMAN FETAL LIVER DNA	104
HG3'CL	HUMAN FETAL LIVER DNA	84
OMM'CL	HUMAN ADULT CELL LINE CDNA	
H11'CL	HUMAN PLACENTA DNA	102
H16BR'CL	HUMAN PLACENTA DNA	102
ND'CL	HUMAN MYELOMA 266BL CDNA	
MOPC141H'CL	MOUSE AUDLT DNA	81
MC101'CL	MOUSE MYELOMA DNA	84
S107'CL	MOUSE ADULT CDNA	
VH441'CL	MOUSE EMBRYO DNA	101
BCL1'CL	MOUSE ADULT DNA	82
B1-8'CL	MOUSE ADULT HYBRIDOMA CDNA	
S43'CL	MOUSE ADULT HYBRIDOMA CDNA	
186-2'CL	MOUSE ADULT LIVER DNA	82
186-1'CL	MOUSE ADULT LIVER DNA	82
23'CL	MOUSE ADULT LIVER DNA	82
3'CL	MOUSE ADULT LIVER DNA	82
102'CL	MOUSE ADULT LIVER DNA	82
145'CL	MOUSE ADULT DNA	82
6'CL	MOUSE ADULT DNA	100
93G7CRI+'CL	MOUSE HYBRIDOMA CDNA	
PCH105'CL	MOUSE EMBRYO DNA	82
PCH108A'CL	MOUSE EMBRYO DNA	83
PCH108B'CL	MOUSE EMBRYO DNA	83
PCH104'CL	MOUSE EMBRYO DNA	84
PCH111'CL	MOUSE EMBRYO DNA	83
MOPC21H'CL	MOUSE ADULT PLASMACYTOMA CDNA	
MCPC603H'CL	MOUSE ADULT DNA	
V1'CL	MOUSE SPERM DNA	
V11'CL	MOUSE SPERM DNA	
V13'CL	MOUSE SPERM DNA	
PMU3'CL	RABBIT ADULT SPLENIC CDNA	
CAIMAN'CL	CAIMAN ADULT GENOMIC DNA90	
VH101'CL	MOUSE ADULT DNA	84

SPECIFIC NOTES: SIGNAL PEPTIDES OF HUMAN HEAVY CHAINS

13) 51P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

15) 783c'CL: ALSO KNOWN AS 783'CL.

23) 1B9/F2'CL: FROM A PATIENT WITH B CELL ACUTE LYMPHOCYTIC LEUKEMIA WITH CHARACTERISTIC t(8;14) CYTOGENETIC TRANSLOCATION AT DIAGNOSIS.

24) 71-5'CL: THIS IS CLASSIFIED AS A PSEUDOGENE, SINCE THE INTRON IN THE PRECURSOR REGION CANNOT BE SPLICED OUT.

31) lambda IGD-1'CL: CLASS SWITCH FROM IGM TO IGD IS PROBABLY DUE TO HOMOLOGOUS RECOMBINATION BETWEEN sigma/mu and SIGMA/mu.

32) OMM'CL: IT WAS FROM A CASE OF HEAVY CHAIN DISEASE.

34) 15P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

35) FK-001'CL: IT CAN BE EXPRESSED FUNCTIONALLY IN MOUSE MYELOMA CELLS.

44) 58P2'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

45) SUP-T1 VH-JA'CL: IT IS FROM A PATIENT SUFFERING FROM CHILDHOOD T-CELL LYMPHOMA WITH inv(14)(q11.2;q32.2). THE INVERSION ON CHROMOSOME 14 BRINGS THE VH GENE AND JA MINIGENE TOGETHER, GIVING RISE TO A HYBRID MOLECULE CONTAINING PART OF THE IMMUNOGLOBULIN GENE AND PART OF THE T-LYMPHOCYTE RECEPTOR FOR ANTIGEN GENE.

48) Pag-1'CL: THREE-DIMENSIONAL MODEL HAS BEEN CONSTRUCTED FOR THIS ANTIBODY.

49) HuVND'CL: THIS IS A HYBRID HEAVY CHAIN CONSISTING OF FR'S FROM NEWM AND CDR'S FROM B1-8'CL, AN ANTI-4-HYDROXY-3-NITROPHENACETYL CAPROIC ACID MOUSE ANTIBODY; B1-8'CL HEAVY CHAIN HAS A BINDING CONSTANT OF 1.2X10EXP6, AND THIS HYBRID HEAVY CHAIN HAS A BINDING CONSTANT OF 1.9X10EXP6.

56) Fog-B'CL: THREE-DIMENSIONAL MODEL HAS BEEN CONSTRUCTED FOR THIS ANTIBODY.

57) 6H-3C4'CL: 6H-3C4 IS AN ESTABLISHED HUMAN-MOUSE HETEROHYBRIDOMA WHICH SECRETES A HUMAN IGM-LAMBDA ANTIBODY. THIS SEQUENCE IS OBTAINED BY LIGATING THE VH GENE WITH HUMAN IGG1 REGION. THE NEW HUMAN IGG1-LAMBDA ANTIBODY FULLY RETAINS THE ORIGINAL SPECIFICITY.

60) CE-1 'CL: CELL LINE CESS

61) JBL2'CL: FROM BURKITT'S LYMPHOMA CELL LINES WHICH PRODUCE TRUNCATED HEAVY CHAINS LACKING PART OF VARIABLE REGION

63) 4G12'CL: IT RECOGNIZES A TUMOR-ASSOCIATED AND DIFFERENTIATION ANTIGEN OF MW 195,000.

64) 30P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

73) 38P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

82) 60P2'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

83) 63P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

86) 56P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

88) 2P1'CL: FROM HUMAN FETUS AT 130 DAYS OF GESTATION.

89) KIM46H'CL: Kim4.6 CELL LINE WAS PRODUCED BY FUSION OF TONSILLAR LYMPHOID CELLS FROM A NORMAL CHILD WITH GM4672, AN IGG-KAPPA PRODUCER.

90) FL2-2'CL: DERIVED FROM HUMAN GENOMIC DNA OF EPSTEIN-BARR VIRUS-TRANSFORMED FETAL B CELL LINE.

95) 333'CL: FROM A HUMAN B CELL LYMPHOMA AFTER ANTI-IDIOTYPIC ANTIBODY TREATMENT.

96) 1B11'CL: FROM A HUMAN B CELL LYMPHOMA AFTER ANTI-IDIOTYPIC ANTIBODY TREATMENT.

97) 112'CL: FROM A HUMAN B CELL LYMPHOMA AFTER ANTI-IDIOTYPIC ANTIBODY TREATMENT.

98) VH10.7'CL: FROM PATIENT WITH IGD-SECRETING MYELOMA. THE V- AND C-REGIONS ARE BROUGHT TOGETHER BY A HOMOLOGOUS RECOMBINATION BETWEEN 442/443-BASE-PAIR REPEATS DELETING THE C-MU.

99) K6H6'CL: FROM A PATIENT WITH B-CELL LYMPHOMA.

100) K4B8'CL: FROM A PATIENT WITH B-CELL LYMPHOMA.

101) K5B8'CL: FROM A PATIENT WITH B-CELL LYMPHOMA.

102) K5G5'CL: FROM A PATIENT WITH B-CELL LYMPHOMA.

103) K5C7'CL: FROM A PATIENT WITH B-CELL LYMPHOMA.

104) K6F5'CL: FROM A PATIENT WITH B-CELL LYMPHOMA.

105) Ly47'CL: FROM BURKITT'S LYMPHOMA CELL LINES WHICH PRODUCE TRUNCATED HEAVY CHAINS LACKING PART OF VARIABLE REGION

106) Ly91'CL: FROM BURKITT'S LYMPHOMA CELL LINES WHICH PRODUCE TRUNCATED HEAVY CHAINS LACKING PART OF VARIABLE REGION

SIGNAL PEPTIDES OF MOUSE HEA

INVARIANT RESIDUES	1 TF5-139 'CL #	2 E7'CL	3 H37-68'C
-20	MET(.99)	MET	MET	MET
-19		MET	MET	MET
-18		VAL	VAL	VAL
-17		LEU	LEU	LEU
-16		SER	SER	SER
-15		---	---	---
-14		LEU	LEU	LEU
-13		LEU	LEU	LEU
-12		TYR	TYR	TYR
-11		---	---	---
-10		LEU	LEU	LEU
-9		LEU	LEU	LEU
-8		THR	THR	THR
-7		ALA	ALA	ALA
-6		LEU	LEU	
-5		PRO	PRO	PRO
-4		GLY	GLY	GLY
-3		ILE	ILE	PHE
-2		LEU	LEU	LEU
-1		SER	SER	SER

	21 Lym-1 'CL	22 2B2 'CL	23 12G10 'CL	24 10G10 'CL	25 2C
-20	MET	MET	MET	MET	
-19	ALA	ALA	ALA	ALA	
-18	VAL	VAL		VAL	
-17	LEU	LEU	LEU	LEU	
-16	GLY	VAL	VAL	VAL	
-15	LEU	LEU	LEU	LEU	
-14	LEU	PHE	PHE	PHE	
-13	LEU	LEU	LEU	LEU	
-12	CYS	CYS	CYS	CYS	
-11	---	---	---	---	
-10	LEU	LEU	LEU	LEU	
-9	VAL	VAL	VAL	VAL	
-8	THR	ALA	ALA	ALA	AI
-7	PHE	PHE	PHE	PHE	PI
-6	PRO	PRO	PRO	PRO	PI
-5	SER	SER	SER	SER	SI
-4	CYS	CYS	CYS	CYS	
-3	VAL	VAL	VAL	VAL	VI
-2	LEU	LEU	LEU	LEU	LI
-1	SER	SER	SER	SER	SI

	43 Id B5.7 'CL	44 31' 'CL	45 I.29 'CL	46 L1.15 'CL	47 3-1 'CL
-20	MET	MET	MET	MET	ME
-19	ASP	GLY	GLY	GLY	GL
-18	ARG	ARG	TRP	TRP	TR
-17	LEU	LEU	SER	SER	SE
-16	THR	THR	TRP	TRP	TR
-15	SER	PHE	ILE	ILE	IL
-14	SER	SER	PHE	PHE	PH
-13	PHE	PHE	LEU	LEU	LE
-12	LEU	LEU	PHE	PHE	PH
-11	---	LEU	---	---	--
-10	LEU	LEU	LEU	LEU	LE
-9	LEU	LEU	LEU	LEU	LE
-8	ILE	PRO	SER	SER	SE
-7	VAL	VAL	GLY	GLY	GL
-6	PRO	PRO	THR	THR	TH
-5	ALA	ALA	ALA	ALA	AL
-4	TYR	TYR	GLY	GLY	GL
-3	VAL	VAL	VAL	VAL	VA
-2	LEU	LEU	LEU	LEU	HI
-1	SER	SER	SER	SER	SE

	66 B13 H4C8 'CL	67 13 'CL #	68 30 'CL #	69 E4 'CL	70 5.4.1 'CL #
-20	MET	MET	MET	MET	MET
-19	GLU	GLY	GLY	ASP	GLY
-18	TRP	TRP	TRP	CYS	TRP
-17	PRO	SER	SER	GLY	SER
-16	LEU	ARG	ARG	ILE	CYS
-15	ILE	ILE	ILE	SER	ILE
-14	SER	PHE	PHE	LEU	ILE
-13	LEU	LEU	LEU	VAL	LEU
-12	PHE	PHE	PHE	PHE	PHE
-11	---	---	---	---	---
-10	LEU	LEU	LEU	LEU	LEU
-9	LEU	LEU	LEU	VAL	ALA
-8	SER	SER	SER	LEU	ALA
-7	GLY	ILE	ILE	ILE	ALA
-6	THR	ILE	ILE	LEU	ALA
-5	ALA	ALA	ALA	LYS	THR
-4	GLY	GLY	GLY	SER	GLY
-3	VAL	VAL	VAL		VAL
-2	GLN	HIS	HIS		HIS
-1	SER	CYS	CYS		SER

SIGNAL PEPTIDES OF MOUSE HEAVY CHAINS

	INVARIANT RESIDUES	1 TF5-139 'CL #	2 E7'CL	3 H37-68'CL	4 H37-79'CL	5 H37-78'CL	6 H37-96'CL	7 TF2-36 'CL #	8 H37-85'CL	9 42.7C.11.2 'CL	10 37.1.1 'CL	11 LB8 'CL	12 1B43 'CL	13 GAM 3-2 'CL	14 733 'CL	15 PCG1-1 'CL	16 H26 'CL	17 3F2 'CL	18 14C7 'CL	19 4F10 'CL	20 18G8 'CL
-20	MET(.99)	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET	MET
-19		MET	MET	MET	MET	MET	MET	MET	MET	MET	LYS	ARG	ARG	ARG	LYS	ALA	ALA	ALA	ALA	ALA	ALA
-18		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	MET	VAL	VAL			VAL	
-17		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	LEU	LEU	LEU	LEU	LEU	LEU
-16		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	ILE	ILE	ILE	THR	ALA	VAL	VAL	VAL	VAL	VAL
-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	LEU	LEU			LEU	LEU
-14		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE	PHE	PHE
-13		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	LEU	LEU	LEU	LEU	LEU
-12		TYR	TYR	TYR	TYR	TYR	TYR	TYR	TYR	TYR	TYR	TRP	CYS	CYS	TYR	CYS	CYS	CYS	CYS	CYS	CYS
-11		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-10		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-9		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	PHE	PHE	PHE	LEU	VAL	VAL	VAL	VAL	VAL	VAL
-8		THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	ALA	ALA	ALA	ALA	ALA
-7		ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	VAL	PHE	PHE	PHE	PHE	PHE	PHE
-6		LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	ILE	PHE	PHE	PHE	VAL	PRO	PRO	PRO	PRO	PRO	PRO
-5		PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	SER	SER	SER	SER	SER	SER
-4		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	CYS	CYS	CYS	CYS	CYS	CYS
-3		ILE	ILE	PHE	ILE	ILE	ILE	ILE	SER	ILE	ILE	ILE	LEU	LEU	LEU	LEU	VAL	VAL	VAL	VAL	VAL
-2		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-1		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER

	INVARIANT RESIDUES	21 Lym-1 'CL	22 2B2 'CL	23 12G10 'CL	24 10G10 'CL	25 2C7 'CL	26 3E3 'CL	27 20G9 'CL	28 5C3 'CL	29 9G6 'CL	30 3B6 'CL	31 A8.1 'CL	32 A8.2 'CL	33 Ox2 BFL16 'CL	34 MC 101 'CL	35 VH101 'CL	36 D23'CL	37 7B10 'CL	38 VHQ52 Q5SH. 100'CL #	39 18-2-3 'CL	40 11G3 'CL	41 13D4 'CL	42 B6.2 'CL #
-20	MET	MET	MET	MET		MET		MET	MET	MET	MET	MET		MET	MET	MET	MET		MET	MET	MET	MET	ASP
-19	ALA	ALA	ALA	ALA		ALA		ALA	ALA	ALA	ALA	ALA		ALA	ALA	ALA			ALA	ALA	ALA	ALA	ASP
-18	VAL	VAL		VAL		VAL		VAL	VAL	VAL	VAL	VAL		VAL	VAL	VAL			VAL	VAL		VAL	ARG
-17	LEU	LEU	LEU	LEU		LEU		LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU
-16	GLY	VAL	VAL	VAL		VAL		VAL	VAL	VAL	GLY	GLY		GLY	GLY	GLY			GLY	VAL	VAL	VAL	THR
-15	LEU	LEU	LEU	LEU		LEU			LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	SER
-14	LEU	PHE	PHE	PHE		PHE	PHE	PHE	PHE	PHE	LEU	LEU		LEU	LEU	LEU	PHE	LEU	PHE	PHE	PHE	SER	SER
-13	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	PHE	PHE		PHE	PHE	PHE	LEU	LEU	LEU	LEU	LEU	LEU	PHE
-12	CYS	CYS	CYS	CYS		CYS	CYS	CYS	CYS	CYS	CYS	CYS		CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	LEU
-11	---	---	---	---		---	---	---	---	---	---	---		---	---	---	---	---	---	---	---	---	---
-10	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-9	VAL	VAL	VAL	VAL		VAL	VAL	VAL	VAL	VAL	VAL	VAL		VAL	VAL	VAL	VAL	VAL	THR	ALA	ALA	ALA	ILE
-8	THR	ALA	ALA	ALA	ALA	ALA		ALA	ALA	ALA	THR	THR		THR	THR	THR	ALA	THR	PHE	PHE	PHE	PHE	VAL
-7	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE		PHE	PHE	PHE	PHE	PHE	PRO	PRO	PRO	PRO	PRO
-6	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO		PRO	PRO	PRO	PRO	PRO					
-5	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER		SER	SER	SER	SER	SER	SER	SER	SER	SER	ALA
-4	CYS	CYS	CYS	CYS		CYS	CYS	CYS	CYS	CYS	CYS	CYS		CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	CYS	TYR
-3	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
-2	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
-1	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER

	INVARIANT RESIDUES	43 Id BS.7 'CL	44 31' 'CL	45 I.29 'CL	46 L1.15 'CL	47 3-13 'CL	48 PCH 108A 'CL	49 H16 'CL	50 45.21.1 'CL	51 9.14.7 'CL	52 5G2 'CL	53 L13 'CL	54 3-13' 'CL	55 L7.1 'CL	56 4C11 'CL	57 PCH 105 'CL	58 7F11 'CL	59 26-10VH 'CL	60 F6-3 'CL	61 A1/ A4 'CL	62 H30 'CL	63 MU-3.2 'CL	64 PCH 108B 'CL	65 H26 -1 'CL #
-20	MET	MET	MET	MET	MET	MET	MET		MET		MET		MET	MET	MET	MET	MET	MET	MET	MET			ILE	ILE
-19	ASP	GLY	GLY	GLY	GLU	GLY			GLY		GLY		GLU	GLY	GLY	GLY	GLY	GLY	GLY	GLY			LYS	LYS
-18	ARG	ARG	TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP			TRP	TRP
-17	LEU	LEU	SER	SER	SER	SER		SER	SER	SER	SER		SER	SER	SER	SER	SER	SER	SER	ARG			SER	SER
-16	THR	THR	TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP		TRP	TRP	TRP	TRP	TRP	TRP	TRP	TRP			TRP	TRP
-15	SER	PHE	ILE	ILE	ILE	ILE		ILE	ILE	ILE			ILE	ILE	ILE	ILE	ILE	ILE	ILE	ILE			ILE	ILE
-14	SER	SER	PHE	PHE	PHE	PHE		PHE	PHE	PHE			PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE			SER	PHE
-13	PHE	PHE	LEU	LEU	LEU	LEU		LEU	LEU	LEU			LEU	PHE	LEU	PRO	LEU	LEU	LEU	LEU			LEU	LEU
-12	LEU	LEU	PHE	PHE	PHE	PHE		PHE	PHE	PHE			PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE			PHE	PHE
-11	---	LEU	---	---	---	---		---	---	---			---	---	---	---	---	---	---	---			---	---
-10	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU
-9	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU
-8	ILE	PRO	SER	SER	SER	SER		SER	SER	SER			SER	SER	SER	SER	SER	SER	SER	SER			SER	SER
-7	VAL	VAL	GLY	GLY	GLY	GLY		GLY	GLY	GLU			GLY	GLY	GLY	GLY	GLU	GLY	GLY	GLY			GLY	CLY
-6	PRO	PRO	THR	THR	THR	THR		THR	THR	THR			THR	THR	THR	THR	THR	THR	THR	THR			THR	THR
-5	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA		ALA	ALA
-4	TYR	TYR	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		GLY	ARG
-3	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		VAL	VAL
-2	LEU	LEU	LEU	LEU	HIS	HIS	HIS	LEU	LEU	LEU	HIS	HIS	LEU	LEU	HIS	LEU	LEU	LEU	HIS	HIS	HIS		HIS	HIS
-1	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	CYS	SER	SER	SER	CYS	SER	SER		SER	SER

	INVARIANT RESIDUES	66 B13 H4C8 'CL	67 13 'CL #	68 30 'CL #	69 E4 'CL	70 5.4.1 'CL #	71 5.4.2 'CL #	72 4.4.1 'CL #	73 4.4.1a 'CL #	74 H13 -3 'CL	75 14.6b.1 'CL	76 19.1.2 'CL	77 26.4.1 'CL	78 2.7. 1G.10 'CL #	79 BCL1 'CL	80 BD5 'CL	81 A5B9 'CL	82 37A11 'CL	83 MBr1 'CL #	84 503 'CL	85 8E3 'CL	86 7C6 'CL	87 pVCM (VD93) 'CL
-20	MET	MET	MET	MET	MET	MET	MET	MET	MET		MET	MET	MET	---	MET	MET	MET	MET		MET	MET	MET	MET
-19	GLU	GLY	GLY	ASP	GLY	GLY	GLY	GLY			GLU	GLU	GLU	---	GLY	GLY	GLU	GLU		GLU	GLU	GLU	GLU
-18	TRP	TRP	TRP	CYS	TRP	TRP	TRP	TRP			TRP	TRP	TRP	MET	TRP		TRP	TRP		ARG	ARG	ARG	CYS
-17	PRO	SER	SER	GLY	SER	SER	SER	SER			THR	THR	THR	THR	SER	SER	THR	THR		HIS	HIS	HIS	LEU
-16	LEU	ARG	ARG	ILE	CYS	CYS	CYS	CYS			TRP	TRP	TRP	TRP	CYS	CYS	TRP	TRP		TRP	TRP	TRP	VAL
-15	ILE	ILE	ILE	SER	ILE	ILE	ILE	ILE			VAL	VAL	VAL	VAL	ILE	ILE	VAL	VAL		ILE	ILE	ILE	SER
-14	SER	PHE	PHE	LEU	ILE	ILE	ILE	ILE			PHE	PHE	PHE	PHE	ILE	ILE	PHE	PHE		PHE	PHE	PHE	LEU
-13	LEU	LEU	LEU	VAL	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	PHE	LEU	LEU	LEU		LEU	LEU	LEU	SER
-12	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE			PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE		SER	SER	SER	SER
-11	---	---	---	---	---	---	---	---			---	---	---	---	---	---	---	---		---	---	---	---
-10	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU			LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		LEU	LEU	LEU	SER
-9	LEU	LEU	LEU	VAL	ALA	ALA	ALA	ALA			LEU	LEU	LEU	LEU	VAL	VAL	LEU	LEU		LEU	LEU	LEU	CYS
-8	SER	SER	SER	LEU	ALA	ALA	ALA	ALA			SER	SER	SER	SER	ALA	ALA	SER	SER		SER	SER	SER	GLN
-7	GLY	ILE	ILE	ILE	ALA	ALA	ALA	ALA			VAL	VAL	VAL	VAL	THR	ALA	VAL	VAL		VAL	VAL	VAL	ALA
-6	THR	ILE	ILE	LEU	ALA	ALA	ALA	ALA			THR	THR	THR	THR	ALA	ALA	THR	THR		ILE	ILE	ILE	THR
-5	ALA	ALA	ALA	LYS	THR	THR	THR	THR	ALA		ALA	ALA	ALA	ALA	THR	THR	ALA	ALA		ALA	ALA	ALA	GLU
-4	GLY	GLY	GLY	SER	GLY	GLY	GLY	GLY	GLY		GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		GLY	GLY	GLY	
-3	VAL	VAL	VAL		VAL	VAL	VAL	VAL	VAL		VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
-2	GLN	HIS	HIS		HIS	HIS	HIS	HIS	HIS		HIS	HIS	HIS	HIS	HIS	ASP	HIS	HIS	HIS	HIS	HIS	HIS	
-1	SER	CYS	CYS		SER	SER	SER	SER	SER		SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	

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